



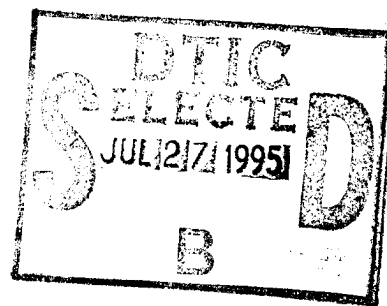
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INTRODUCTION

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1991 PAPERS PUBLISHED IN PERIODICALS, BOOKS, AND PROCEEDINGS

ACOUSTICS

Acoustic Scattering from Finite Cylindrical Elastic Objects, by Maze, G., Lecroq, F., Decultot, D., Ripoché, J., Numrich, S.K., and Uberall, H., *Journal of the Acoustical Society of America* **90**:3271-3278, 1991.

The Effect of Wall Elasticity on the Properties of a Helmholtz Resonator, by Photiadis, D.M., *Journal of the Acoustical Society of America* **90**:1188-1190, 1991.

Time-Domain Analysis of the Energy Exchange Between Structural Vibrations and Acoustic Radiation Using Near - Field Acoustical Holography Measurements, by Mann, J.A., Williams, E., Washburn, K., and Grosh, K., *Journal of the Acoustical Society of America* **90**:1656-1664, 1991.

ATMOSPHERIC SCIENCES

Analysis of Standing Wave Patterns in VLF Transmitter Signals: Effects of Sporadic E Layers and Insitu Measurements of Low Electron Densities, by Siefring, C.L. and Kelley, M.C., *Journal of Geophysical Research* **96**:17813-17826, 1991.

Channel Probe Observations of the Auroral Ionosphere During High-Power Auroral Stimulation Heating Experiments, by Wagner, L.S., Goldstein, J.A., Lind, R.W., Wong, A.Y., and McCarrick, M.J., *Radio Science* **25**:1407-1422, 1990.

Errors in the Gerdien Measurement of Atmospheric Electric-Conductivity, by

Anderson, R.V. and Bailey, J.C., *Meteorology and Atmospheric Physics* **46**:101-112, 1991.

Evidence for Trapped Anomalous Cosmic-Ray Oxygen Ions in the Inner Magnetosphere, by Grigorov, N.L., Kondratyeva, M.A., Panasyuk, M.I., Tretyakova, C.A., Adams, J.H., Blake, J.B., Schulz, M., Mewaldt, R.A., and Tylka, A.J., *Geophysical Research Letters* **18**:1959-1962, 1991.

A Model Study of the Response of Mesospheric Ozone to Short-Term Solar Ultraviolet Flux Variations, by Summers, M.E., Strobel, D.F., Bevilacqua, R.M., Zhu, X., Deland, M.T., Allen, M., and Keating, G.M., *Journal of Geophysical Research* **95**:2523-2538, 1990.

Satellite-Observations of Variations in Tropical Cyclone Convection Caused by Upper-Tropospheric Troughs, by Rodgers, E.B., Chang, S.W., Stout, J., Steranka, J., and Shi, J.J., *Journal of Applied Meteorology* **30**:1163-1184, 1991.

BIOSCIENCES

A Continuous-Flow Immunoassay for Rapid and Sensitive Detection of Small Molecules, by Kusterbeck, A.W., Wemhoff, G.A., Charles, P.T., Yeager, D.A., Bredehorst, R., Vogel, C.W., and Ligler, F.S., *Journal of Immunological Methods* **135**:191-197, 1990.

Diacetylenic Lipid Microstructures: Structural Characterization by X-Ray Diffraction and Comparison with the Saturated Phosphatidylcholine Analog, by

Caffrey, M., Hogan, J., and Rudolph, A.S., *Biochemistry* **30**:2134-2146, 1991.

The Effect of Hydration Stress Solutes on the Phase Behavior of Hydrated Dipalmitoylphosphatidylcholine, by Rudolph, A.S. and Goins, B., *Biochimica et Biophysica Acta* **1066**:90-94, 1991.

The Efficacy of Guayule Resin as a Pesticide, by Bultman, J.D., Gilbertson, R.L., Adaskaveg, J., Amburgey, T.L., Parikh, S.V., and Bailey, C.A., *Bioresource Technology* **35**:197-201, 1991.

Evaluation of the Diagnostic Validity of the Luria-Nebraska Neuropsychological Battery Form - II, by Garmoe, W.S., Schefft, B.K., and Moses, J.A., *International Journal of Neuroscience* **59**:231-239, 1991.

A Malaria Sporozoite Surface-Antigen Distinct from the Circumsporozoite Protein, by Hedstrom, R.C., Campbell, J.R., Leef, M.L., Charoenvit, Y., Carter, M., Sedegah, M., Beaudoin, R.L., and Hoffman, S.L., *Bulletin of the World Health Organization* **68**:152-157, 1990.

Modulation of a Gated Ion Channel Admittance in Lipid Bilayer-Membranes, by Stenger, D.A., Cribbs, D.H., and Fare, T.L., *Biosensors & Bioelectronics* **6**:425-430, 1991.

Synthesis of 2-Exo-Mecamylamine and 2-Endo-Mecamylamine Analogs - Structure-Activity-Relationships for Nicotinic Antagonism in the Central-Nervous-System, by Suchocki, J.A., May, E.L., Martin, T.J., George, C.F., and Martin, B.R., *Journal of Medicinal Chemistry* **34**:1003-1010, 1991.

X-Ray-Fluorescence Analysis of Tree Rings, by Gilfrich, J.V., Gilfrich, N.L., Skelton, E.F., Kirkland, J.P., Qadri, S.B., and Nagel, D.J., *X-Ray Spectrometry* **20**:203-208, 1991.

CHEMISTRY

Analytical Implications of Zeolites in Overlayers at Electrodes, by Rolison, D.R., Nowak, R.J., Welsh, T.A., and Murray, C.G., *Talanta* **38**:27-35, 1991.

Anionic Copolymerization of Bislactone End-Capped Diols with the Diglycidyl Ether of Bisphenol A, by Brady, R.F. and Sikes, A.M., *Macromolecules* **24**:688-692, 1991.

Antiplasticization Effects on a Secondary Relaxation in Plasticized Glassy Polycarbonates, by Ngai, K.L., Rendell, R.W., Yee, A.F., and Plazek, D.J., *Macromolecules* **24**:61-67, 1991.

Characterization of Radical Defects from Abrasion and u.v.-Photolysis in Poly (Ethylene-Terephthalate) Fibers, by Pace, M.D. and Roland, C.M., *Polymer* **32**:1027-1030, 1991.

Charge-Remote Fragmentation of Gas-Phase Ions: Mechanistic and Energetic Considerations in the Dissociation of Long-Chain Functionalized Alkanes and Alkenes, by Wysocki, V.H. and Ross, M.M., *International Journal of Mass Spectrometry and Ion Processes* **104**:179-211, 1991.

Chromogenic Substrates for Horseradish-Peroxidase, by Conyers, S.M. and Kidwell, D.A., *Analytical Biochemistry* **192**:207-211, 1991.

A Comparative-Study of the Reaction Dynamics of a Model System Using Different Criteria in Parameterizing the Potential-Energy Function, by Rice, B.M., Chabalowski, C.F., Adams, G.F., Mowrey, R.C., and Page, M., *Chemical Physics Letters* **184**:335-342, 1991.

Correlation of Polymer Segmental Chain Dynamics with Temperature-Dependent Time-Scale Shifts, by Plazek, D.J. and Ngai, K.L., *Macromolecules* **24**:1222-1224, 1991.

Correspondence Between the Coupling Model Predictions and Computer-Simulations - Diffusion of a Probe Polymer in a Matrix Having Different Degrees of Polymerization, by Ngai, K.L. and Skolnick, J., *Macromolecules* **24**:1561-1566, 1991.

Coupling Scheme Applied to Solvent Relaxation Modified by Dissolved Polymer Molecules, by Ngai, K.L., *Journal of Polymer Science Part B - Polymer Physics* **29**:867-876, 1991.

- Couplings Between the Cooperatively Rearranging Regions of the Adam-Gibbs Theory of Relaxations in Glass-Forming Liquids**, by Ngai, K.L., Rendell, R.W., and Plazek, D.J., *Journal of Chemical Physics* **94**:3018-3029, 1991.
- Depth Profile Studies of DC₂₃PC Bilayer Structure Using Multidiscipline Approach**, by Sonnenschein, M.F. and Pace, M.D., *Langmuir* **7**:1880-1891, 1991.
- Direct Measurement of Rate Constants for the Reactions of CH and CD with HCN and DCN**, by Zabarnick, S., Fleming, J.W., and Lin, M.C., *Chemical Physics* **150**:109-115, 1991.
- Displaying the Results from NMR Pulse Sequence Simulations as Stereo Diagrams**, by Butler, L.G., *Journal of Magnetic Resonance* **91**:396-399, 1991.
- Dissociative Adsorption and Associative Desorption of H₂ on a Flat Surface**, by Mowrey, R.C. and Dunlap, B.I., *International Journal of Quantum Chemistry Quantum Chemistry Symposium* **25**:641-657, 1991.
- Distillate Fuel Insolubles - Formation Conditions and Characterization**, by Hazlett, R.N., Schreifels, J.A., Stalick, W.M., Morris, R.E., and Mushrush, G.W., *Energy & Fuels* **5**:269-273, 1991.
- Effects of Hydration on Scale Factors for Ab Initio Force Constants**, by Williams, R.W. and Lowrey, A.H., *Journal of Computational Chemistry* **12**:761-777, 1991.
- Electrochemical STM of Condensed Guanine on Graphite**, by Srinivasan, R., Murphy, J.C., Fainchtein, R., and Pattabiraman, N., *Journal of Electroanalytical Chemistry* **312**:293-300, 1991.
- Electron Temperatures in a Pulsed Electric Discharge and the Associated N₂ Electron Excitation Rate Coefficients**, by Morrill, J.S., Benesch, W.M., and Widing, K.G., *Journal of Chemical Physics* **94**:262-269, 1991.
- Energy Partitioning in the 266 nm Dissociation of HN₃ and Relative Transition-Probabilities in the NH (c ¹Π ↔ a ¹Δ) System**, by Nelson, H.H. and McDonald, J.R., *Journal of Chemical Physics* **93**:8777-8783, 1990.
- EPR-Spectra of Photochemical NO₂ Formation in Monocyclic Nitramines and Hexanitrohexaazaisowurtzitane**, by Pace, M.D., *Journal of Physical Chemistry* **95**:5858-5864, 1991.
- Fast Switching Ferroelectric Side-Chain Liquid Crystalline Polymer and Copolymer**, by Naciri, J., Pfeiffer, S., and Shashidhar, R., *Liquid Crystals* **10**:585-591, 1991.
- Flux-Corrected Transport Techniques for Multidimensional Compressible Magneto-hydrodynamics**, by Devore, C.R., *Journal of Computational Physics* **92**:142-160, 1991.
- Formation of the Gas-Phase Aluminum Sulfide Cations Al₂S_y⁺ and Their Reactions with NO₂**, by Parent, D.C., *Chemical Physics Letters* **183**:45-50, 1991.
- FTIR Spectroscopy and Photochemistry of Nickel and Ethylene-Oxide in Solid Argon - The Microsynthesis and Metathesis Reactions of a Nickel Metallacycle**, by Kline, E.S., Hauge, R.H., Margrave, J.L., and Kafafi, Z.H., *High Temperature Science* **30**:69-82, 1990.
- The Gas-Phase Dissociation of a New Polyazapolycyclic Nitramine: Hexanitrohexaazaisowurtzitane**, by Doyle, R.J., *Organic Mass Spectrometry* **26**:723-726, 1991.
- Generation of Short, Intense Gradient Pulses**, by Conradi, M.S., Garroway, A.N., Cory, D.G., and Miller, J.B., *Journal of Magnetic Resonance* **94**:370-375, 1991.
- Glassy Ionics - Discussion**, by Risen, W.M., Ingram, M.D., Chrysikos, G., Mendiratta, S.K., Strom, U., Angell, C.A., Tsai, T.E., Donth, E.J., Bunde, A., Ngai, K.L., Martin, S., Nitzan, A., Moynihan, C.T., Pollak, M., Bates, J., Kremer, F., Cole, R.H., Berberian, J., Kanert, O., Heitjans, P., and Jain, H., *Journal of Non-Crystalline Solids* **131**:1113-1122, 1991.
- H₂O Catalysis of Aluminum Carbide Formation in the Aluminum-Silicon Carbide System**, by Maruyama, B. and Ohuchi, F.S., *Journal of Materials Research* **6**:1131-1134, 1991.

Hydration Model for the Molarity Dependence of the Etch Rate of Si in Aqueous Alkali Hydroxides, by Glembocki, O.J., Palik, E.D., Deguel, G.R., and Kendall, D.L., *Journal of the Electrochemical Society* **138**:1055-1063, 1991.

Hydrogen Abstraction from a Diamond Surface. Ab Initio Quantum Chemical Study with Constrained Isobutane as a Model, by Page, M. and Brenner, D.W., *Journal of the American Chemical Society* **113**:3270-3274, 1991.

Hydrogen-Bonding. Part 18. Gas-Liquid Chromatographic Measurements for the Design and Selection of Some Hydrogen Bond Acidic Phases Suitable for Use as Coatings on Piezoelectric Sorption Detectors, by Abraham, M.H., Hamerton, I., Rose, J.B., and Grate, J.W., *Journal of the Chemical Society - Perkin Transaction II* **9**:1417-1423, 1991.

In-Situ Time-Resolved EXAFS Study of the Structural Modifications Occurring in Nickel Oxide Electrodes Between Their Fully Oxidized and Reduced States, by Guay, D., Tourillon, G., Dartyge, E., Fontaine, A., McBreen, J., Pandya, K.I., and O'Grady, W.E., *Journal of Electroanalytical Chemistry* **305**:83-95, 1991.

Intersegmental Interaction and Critical Concentrations in PET-HFIP Solutions, by Sonnenschein, M.F. and Roland, C.M., *Journal of Polymer Science Part B - Polymer Physics* **29**:431-436, 1991.

Isolation and Characterization of Stereoisomers of Pentacoordinated Phosphorus. Hydrolysis of Unsymmetrically Substituted Chiral Monocyclic Oxophosphoranes, by Moriarty, R.M., Hiratake, J., Liu, K.M., Wendler, A., Awasthi, A.K., and Gilardi, R.D., *Journal of the American Chemical Society* **113**:9374-9376, 1991.

Miscible Mixtures of Polychloroprene and Epoxidized Polyisoprene, by Nagode, J.B. and Roland, C.M., *Polymer* **32**:505-509, 1991.

Mixed Aluminum and Indium Oxide Cations: Controlling Reactivity, by Parent, D.C., *Chemical Physics Letters* **183**:51-54, 1991.

Nonlinear Optical Studies on Transition Metal Complexes of ortho-Aminobenzenethiol, by Kafafi, Z.H., Lindle, J.R., Weisbecker, C.S., Bartoli, F.J., Shirk, J.S., Yoon, T.H., and Kim, O.K., *Chemical Physics Letters* **179**:79-84, 1991.

Novel Trifunctional Carrier Molecule for the Fluorescent Labeling of Haptens, by Bredehorst, R., Wemhoff, G.A., Kusterbeck, A.W., Charles, P.T., Thompson, R.B., Ligler, F.S., and Vogel, C.W., *Analytical Biochemistry* **193**:272-279, 1991.

OH and CH Profiles in a 10 Torr Methane/Oxygen Flame: Experiment and Flame Modeling, by Fleming, J.W., Burton, K.A., and Ladouceur, H.D., *Chemical Physics Letters* **175**:395-400, 1990.

Oxide Acid-Base Reactions Relating to the Inhibition of Vanadium Attack on REY Zeolite Catalysts, by Jones, R.L., *Journal of Catalysis* **129**:269-274, 1991.

Paramagnetism of High Nuclearity Metal Cluster Compounds as Derived from Local Density Functional Calculations, by Rosch, N., Ackerman, L., Pacchioni, G., and Dunlap, B.I., *Journal of Chemical Physics* **95**:7004-7007, 1991.

Polydentate Ligands Containing Phosphorus. 13. Synthesis and Molecular Structure of (Tri-N- Butylphosphine)(tris(diphenylthio phosphinoyl)methanido) silver(I), (n-Bu)₃PAg ((s)PPh₂)₃C, by Grim, S.O., Sangokoya, S.A., Rheingold, A.L., Mcfarlane, W., Colquhoun, I.J., and Gilardi, R.D., *Inorganic Chemistry* **30**:2519-2522, 1991.

Polymer Diffusion, Dynamics and Viscoelasticity - Discussion, by Yu, H., Schwarz, K., McKenna, G., Muthukumar, M., Sillescu, H., Donth, E.J., Struik, L., Lodge, T.P., Phillies, G., Osaki, C., Hilfer, R., Grest, G., Dymek, C., and Wang, C.H., *Journal of Non-Crystalline Solids* **131**:742-754, 1991.

Primary and Secondary Neopentyl Arsines and Their Reactions with Trimethylgallium. Crystal and Molecular - Structure of (Me₂GaAs(CH₂C Me₃)₂)₂, by Pazik, J.C., George, C.F., and Berry, A., *Inorganica Chimica Acta* **187**:207-215, 1991.

Production, Dissociation and Reactivity of Carbon Cluster Anions, by McElvany, S.W., *International Journal of Mass Spectrometry and Ion Processes* **102**:81-98, 1990.

Reactions of Decakis(Isopropylisocyanide) Dicobalt(II) Complexes with Tertiary Phosphine-Ligands, by Becker, C.A.L., Alqallaf, S.A., and Cooper, J.C., *Inorganica Chimica Acta* **188**:99-106, 1991.

Simulations of Lipid Crystals: Characterization of Potential-Energy Functions and Parameters for Lecithin Molecules, by Stouch, T.R., Ward, K.B., Altieri, A., and Hagler, A.T., *Journal of Computational Chemistry* **12**:1033-1046, 1991.

Solvent Rotational Mobility in Polystyrene/Aroclor and Polybutadiene/Aroclor Solutions. II. A Photon Correlation Spectroscopic Study, by Rizos, A., Fytas, G., Lodge, T.P., and Ngai, K.L., *Journal of Chemical Physics* **95**:2980-2987, 1991.

Some Connections Between Viscoelastic Properties of PVC and Plasticized PVC and Molecular Kinetics, by Ngai, K.L. and Yee, A.F., *Journal of Polymer Science Part B - Polymer Physics* **29**:1493-1501, 1991.

Stability of Refined Products and Crude-Oil Stored in Large Cavities in Salt Deposits - Biogeochemical Aspects, by Giles, H.N., Koenig, J.W.J., Neihof, R.A., Shay, J.Y., and Woodward, P.W., *Energy & Fuels* **5**:602-608, 1991.

Structure of Polymerizable Lipid Bilayers III: Two Heptacosadiynoyl Phosphatidylcholine Isomers, by Blechner, S.L., Morris, W., Schoen, P.E., Yager, P., Singh, A., and Rhodes, D.G., *Chemistry and Physics of Lipids* **58**:41-54, 1991.

Structure of Polymerizable Lipid Bilayers IV: Mixtures of Long Chain Diacetylenic and Short Chain Saturated Phosphatidylcholines and Analogous Asymmetric Isomers, by Rhodes, D.G. and Singh, A., *Chemistry and Physics of Lipids* **59**:215-224, 1991.

Substituent Effects on the Frontier Molecular-Orbitals of Aryl Isonitriles, by

Johnston, R.F. and Cooper, J.C., *Journal of Molecular Structure - Theochem* **82**:297-307, 1991.

The Synthesis and Attempted Polymerization of an α , β , β -Trifluorostyrene Disubstituted by Hexafluoro-2-Propanol Groups, by Sprague, L.G., Snow, A.W., and Griffith, J.R., *Journal of Fluorine Chemistry* **52**:301-306, 1991.

Synthesis and Evaluation of Hexafluoro-dimethylcarbinol Functionalized Polymers as Microsensor Coatings, by Snow, A.W., Sprague, L.G., Soulen, R.L., Grate, J.W., and Wohltjen, H., *Journal of Applied Polymer Science* **43**:1659-1671, 1991.

Synthesis and Nucleophilic Displacement Reactions of Novel (η^6 -2-Chloro-3-Methoxyestrone)(η^5 -cyclopentadienyl)ruthenium Hexafluorophosphates, by Moriarty, R.M., Guo, L., Ku, Y., and Gilardi, R.D., *Journal of the Chemical Society - Chemical Communications* **24**:1765, 1990.

Synthesis of Oligomeric Imide-Containing Phthalonitriles, by Keller, T.M., *Polymer Communications* **32**:2-4, 1991.

Synthesis, Characterization and Molecular-Structure of Tetrakis(2,6-Diethylphenylisocyanide)bis(Perchlorato)Cobalt(II) - An Example of Dissimilarity Between Perchlorate and Tetrafluoroborate Salts, by Becker, C.A.L. and Cooper, J.C., *Inorganica Chimica Acta* **182**:25-32, 1991.

Synthesis, Stereochemistry, and Biological Activity of the 1-(1-Phenyl-2-Methylcyclohexyl)Piperidines and the 1-(1-Phenyl-4-Methylcyclohexyl)Piperidines. Absolute Configuration of the Potent Trans-(-)-1-(1-Phenyl-2-Methylcyclohexyl)Piperidine, by Iorio, M.A., Tomassini, L., Mattson, M.V., George, C.F., and Jacobson, A.E., *Journal of Medicinal Chemistry* **34**:2615-2623, 1991.

Test of Expected Correlation of Polymer Segmental Chain Dynamics with Temperature-Dependent Time-Scale Shifts in Concentrated-Solutions, by Ngai, K.L., *Macromolecules* **24**:4865-4867, 1991.

XANES Study of Underpotential Deposited Copper on Carbon-Supported Platinum, by McBreen, J., O'Grady, W.E., Tourillon, G., Dartyge, E., and Fontaine, A., *Journal of Electroanalytical Chemistry* **307**:229-240, 1991.

COMMUNICATIONS

Packet-Error Probability Analysis for Unslotted FH-CDMA Systems with Error-Control Coding, by Tarr, J.A.B., Wieselthier, J.E., and Ephremides, A., *IEEE Transactions on Communications* **38**:1987-1993, 1990.

COMPUTER SCIENCES

Acoustic Holography, by Schuette, L.C., *IEEE Computer Graphics and Applications* **11**:12-13, 1991.

Defining Formalism, by Landwehr, C., McLean, J., and Heitmeyer, C., *Communications of the ACM* **34**:15-16, 1991.

Guest Editors Introduction - Visualization Comes of Age, by Rosenblum, L.J. and Nielson, G.M., *IEEE Computer Graphics and Applications* **11**:15-17, 1991.

How Big is Your Desk-Top - Introduction, by Gaber, B.P., *Journal of Molecular Graphics* **9**:2, 1991.

ELECTRONICS AND ELECTRICITY

Convergence Properties of Gram-Schmidt and SMI Adaptive Algorithms 2, by Gerlach, K.R. and Kretschmer, F.F., *IEEE Transactions on Aerospace and Electronic Systems* **27**:83-91, 1991.

Dante Slice Selection for Solid-State NMR Imaging, by Cory, D.G., Miller, J.B., and Garroway, A.N., *Journal of Magnetic Resonance* **90**:544-550, 1990.

Detection of Light Using High Temperature Superconducting Microstrip Lines, by Culbertson, J.C., Newman, H.S., Strom, U., Pond, J.M., Chrisey, D.B., Horwitz, J.S., and Wolf, S.A.,

IEEE Transactions on Magnetics **27**:1536-1539, 1991.

Diamond Cold-Cathode, by Geis, M.W., Efremow, N.N., Woodhouse, J.D., McAleese, M.D., Marchywka, M., Socker, D.G., and Hochedez, J.F., *IEEE Electron Device Letters* **12**:456-459, 1991.

Effect of Cavity Sub-Corona Current on Polymer Insulation Life, by Bruning, A.M., Kasture, D.G., Campbell, F.J., and Turner, N.H., *IEEE Transactions on Electrical Insulation* **26**:826-836, 1991.

Fabrication of NbCN/PbB: Edge Junctions with Extremely Low Leakage Currents, by Amos, R.S., Lichtenberger, A.W., Feldman, M.J., Mattauch, R.J., and Cukauskas, E.J., *IEEE Transactions on Magnetics* **27**:3200-3202, 1991.

High-Efficiency Operation of Cherenkov Masers, by Freund, H.P. and Ganguly, A.K., *Nuclear Instruments and Methods in Physics Research Section A* **304**:612-616, 1991.

High-Frequency Response of Fiberoptic Planar Acoustic Sensors, by Bucaro, J.A., Lagakos, N., Houston, B.H., and Dandridge, A., *Journal of Lightwave Technology* **9**:1195-1199, 1991.

Improved Amplifier Performance of the NRL Ubitron, by Pershing, D.E., Jackson, R.H., Bluem, H., and Freund, H.P., *Nuclear Instruments and Methods in Physics Research Section A* **304**:127-132, 1991.

Light-Ion Bombarded P-Type $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}$ Photoconductive Detectors, by Rao, M.V., Hong, W.P., Chang, G.K., Papanicolaou, N., and Dietrich, H.B., *Journal of Applied Physics* **69**:7881-7886, 1991.

Microwave Devices Using $\text{YBa}_2\text{Cu}_3\text{O}_{7.5}$ Films Made by Pulsed Laser Deposition, by Newman, H.S., Chrisey, D.B., Horwitz, J.S., Weaver, B.D., and Reeves, M.E., *IEEE Transactions on Magnetics* **27**:2540-2543, 1991.

Modeling Process Latitude in UV Projection Lithography, by Barouch, E., Hollerbach, U., Orszag, S.A., Bradie, B., and Peckerar, M.C., *IEEE Electron Device Letters* **12**:513-514, 1991.

Monte-Carlo Particle Simulation of Radiation-Induced Heating in GaAs Field-Effect Transistors, by Mogilestue, C., Buot, F.A., and Anderson, W.T., *Applied Physics Letters* **59**:192-194, 1991.

Novel Filter Design Incorporating Asymmetrical Stripline Y-Junction Circulators, by How, H. and Carosella, C., *IEEE Transactions on Microwave Theory and Techniques* **39**:40-46, 1991.

Passive Microelectrode Arrays for Recording of Neural Signals - A Simplified Fabrication Process, by Peckerar, M.C., Shamma, S.A., Rebbert, M., Kosakowski, J., and Isaacson, P., *Review of Scientific Instruments* **62**:2276-2280, 1991.

Photoacoustic Signal Enhancement at Visible and X-Ray Wavelengths, by Isak, S.J., Garland, B.A., Eyring, E.M., Kirkland, J.P., and Neiser, R.A., *Applied Physics B - Photophysics and Laser Chemistry* **52**:8-13, 1991.

Systematic Studies of the Effect of a Bandpass Filter on a Josephson-Junction Noise Thermometer, by Soulen, R.J., Fogle, W.E., and Colwell, J.H., *IEEE Transactions on Magnetics* **27**:2920-2923, 1991.

Ten Megacoulomb Switching Operation for the Air Force Battery Powered Inductive Storage Launcher Research Facility, by Klug, R.B., Ford, R.D., Jenkins, D.J., and Lupton, W.H., *IEEE Transactions on Magnetics* **27**:380-383, 1991.

Ultra-Compact Microwave Filters Using Kinetic Inductance Microstrip, by Pond, J.M., Carroll, K.R., and Cukauskas, E.J., *IEEE Transactions on Magnetics* **27**:2696-2699, 1991.

Ultra-High Quality Nb/AlO_x/Nb Tunnel-Junctions with Epitaxial Base Layers, by Kirk, E.C.G., Blamire, M.G., Somekh, R.E., Evetts, J.E., Vanvechten, D., and Lovellette, M.N., *IEEE Transactions on Magnetics* **27**:3137-3140, 1991.

GEOSCIENCES

Arctic Geology and Petroleum Potential - Tromso, Norway, by Max, M.D., *Journal of Petroleum Geology* **14**:104-105, 1991.

Bermuda and Appalachian-Labrador Rises; Common Non-Hotspot Processes?, by Vogt, P.R., *Geology* **19**:41-44, 1991.

Equilibrium Structure of the Plasma Sheet Boundary Layer Lobe Interface, by Romero, H., Ganguli, G., and Palmadesso, P.J., *Geophysical Research Letters* **17**:2313-2316, 1990.

Estuarine Stream Piracy; Calvert County, United States Atlantic Coastal Plain, by Vogt, P.R., *Geology* **19**:754-757, 1991.

Gulf-Coast East-Coast Magnetic Anomaly; 1. Root of the Main Crustal Decollement for the Appalachian-Ouachita Orogen Comment, by Lefort, J.P. and Max, M.D., *Geology* **19**:670, 1991.

Is There an Archean Crust Beneath Chesapeake Bay, by Lefort, J.P. and Max, M.D., *Tectonics* **10**:213-226, 1991.

Mantle Downwelling Beneath the Australian-Antarctic Discordance Zone - Evidence from Geoid Height Versus Topography, by Marks, K.M., Sandwell, D.T., Vogt, P.R., and Hall, S.A., *Earth and Planetary Science Letters* **103**:325-338, 1991.

Nitrogen Airglow Sources - Comparison of Triton, Titan, and Earth, by Strobel, D.F., Meier, R.R., Summers, M.E., and Strickland, D.J., *Geophysical Research Letters* **18**:689-692, 1991.

Reduction of the General Fracture Compliance Matrix-Z to Only 5 Independent Elements, by Berg, E., Hood, J.A., and Fryer, G.J., *Geophysical Journal International* **107**:703-707, 1991.

INFORMATION

Big Science vs Little Science - The Controversy Mounts (Reprinted from *Cosmos - A Journal of Emerging Issues*), by Friedman, H., *Applied Optics* **30**:4462-4467, 1991.

Cole, Robert, Hugh (1914-1990) - Obituary, by Risen, W.M., Williams, G., Angell, C.A., and Ngai, K.L., *Journal of Non-Crystalline Solids* **131**:R11-R12, 1991.

LASER SCIENCE

Alexandrite-Laser Excitation of a TM:Ho-Y₃Al₅O₁₂ Laser, by Jani, M.G., Reeves, R.J., Powell, R.C., Quarles, G.J., and Esterowitz, L., *Journal of the Optical Society of America B - Optical Physics* **8**:741-746, 1991.

K-Shell X-Ray-Emission from Sodium Wire Array Implosions as the Pump for the Sodium-Neon X-Ray Laser Scheme, by Deeney, C., Nash, T., Prasad, R.R., Warren, L., and Apruzese, J.P., *Applied Physics Letters* **58**:1021-1023, 1991.

Laser-Beam Propagation in Turbulent Conditions, by Searles, S.K., Hart, G.A., Dowling, J.A., and Hanley, S.T., *Applied Optics* **30**:401-406, 1991.

Nonlinear-Theory of Slow-Wave Ubitrons Free-Electron Lasers, by Freund, H.P., *Nuclear Instruments and Methods in Physics Research Section A* **304**:555-558, 1991.

Room-Temperature Dy:YLF Laser Operation at 4.34 μ m, by Barnes, N.P. and Allen, R.E., *IEEE Journal of Quantum Electronics* **27**:277-282, 1991.

Simulation of Free-Electron Lasers in the Presence of Correlated Magnetic-Field Errors, by Marable, W.P., Tang, C.M., and Esarey, E., *IEEE Journal of Quantum Electronics* **27**:2693-2696, 1991.

Spectroscopy and Laser Operation of Nd-ZBAN Glass, by Petrin, R.R., Kliewer, M.L., Beasley, J.T., Powell, R.C., Aggarwal, I.D., and Ginther, R.C., *IEEE Journal of Quantum Electronics* **27**:1031-1038, 1991.

Status-Report on the NIST-NRL Free Electron Laser, by Debenham, P.H., Ayres, R.L., Cassatt, W.A., Johnson, B.C., Johnson, R.G., Lindstrom, E.R., Liposky, P.J., Marella, A.B., Mohr, D.L., Whittaker, J.K., Wilkin, N.D., Wilson, M.A.D., Tang, C.M., Sprangle, P., and

Penner, S., *Nuclear Instruments and Methods in Physics Research Section A - Accelerators Spectrometers Detectors and Associated Equipment* **304**:208-211, 1991.

Transverse Beam Reshaping and Beam Encoding by Two-Beam Coupling in Ruby, by Afzal, R.S. and Lawandy, N.M., *Optics Communications* **86**:307-310, 1991.

Tunable Laser Pumped 3 μ m Ho:YAlO₃ Laser, by Rabinovich, W.S., Bowman, S.R., Feldman, B.J., and Winings, M.J., *IEEE Journal of Quantum Electronics* **27**:895-897, 1991.

Wavelength and Emittance Requirements in Free-Electron Lasers, by Roberson, C.W. and Hafizi, B., *IEEE Journal of Quantum Electronics* **27**:2508-2511, 1991.

MATHEMATICS

An Extension of a Theorem of Steinmetz, by Gross, F. and Osgood, C.F., *Journal of Mathematical Analysis and Applications* **156**:287-292, 1991.

Higher-Order Averaging for Nonperiodic Systems, by Saenz, A.W., *Journal of Mathematical Physics* **32**:2679-2694, 1991.

Incomplete Weber Integrals of Cylindrical-Functions, by Miller, A.R. and Moskowitz, I.S., *Journal of the Franklin Institute* **328**:445-457, 1991.

Representations for Incomplete Integrals of Cylindrical Functions, by Miller, A.R., *Journal of the Franklin Institute* **328**:163-170, 1991.

MECHANICS

A Computational Investigation of Local Material Strength and Toughness on Crack-Growth, by Degiorgi, V.G. and Matic, P., *Engineering Fracture Mechanics* **37**:1039-1058, 1990.

Ductile Alloy Constitutive Response by Correlation of Iterative Finite-Element Simulation with Laboratory Video Images,

by Matic, P., Kirby, G.C., Jolles, M.I., and Father, P.R., *Engineering Fracture Mechanics* **40**:395-419, 1991.

Effect of Ripple Load on Stress Corrosion Cracking in Structural Steels, by Pao, P.S., Bayles, R.A., and Yoder, G.R., *Journal of Engineering Materials and Technology* **113**:125-129, 1991.

Evolution Equation for the Void Volume Growth-Rate in a Viscoplastic-Damage Constitutive Model, by Eftis, J. and Nemes, J.A., *International Journal of Plasticity* **7**:275-293, 1991.

Role for Plastic-Flow in Ambient-Temperature Cracking Behavior at Hardness Indentations in Silicon-Crystals, by Shin, H.J., Armstrong, R.W., and Singer, I.L., *Journal of Materials Science* **26**:3486-3490, 1991.

Viscoplastic Analysis of Plate-Impact Spallation, by Eftis, J., Nemes, J.A., and Randles, P.W., *International Journal of Plasticity* **7**:15-39, 1991.

METALLURGY

Effect of Processing Variables on Texture and Texture Gradients in Tantalum, by Clark, J.B., Garrett, R.K., Jungling, T.L., Vandermeer, R.A., and Vold, C.L., *Metallurgical Transactions A - Physical Metallurgy and Materials Science* **22**:2039-2048, 1991.

Effect of Ripple Loads on Stress-Corrosion Cracking in Al 7075 Alloys, by Pao, P.S., Gill, S.J., Bayles, R.A., and Yoder, G.R., *Scripta Metallurgica et Materialia* **25**:2085-2089, 1991.

Expansivity of Diboride-Particulate Aluminum Composites, by Everett, R.K. and Higby, P.L., *Scripta Metallurgica et Materialia* **25**:625-630, 1991.

The Interfacial Structure and Habit Plane of Proeutectoid Cementite Plates, by Spanos, G. and Aaronson, H.I., *Acta Metallurgica et Materialia* **38**:2721-2732, 1990.

Microstructural Paths of Shape-Preserved Nucleation and Growth Transformations,

by Vandermeer, R.A., Masumura, R.A., and Rath, B.B., *Acta Metallurgica et Materialia* **39**:383-389, 1991.

Modeling Diffusional Growth During Austenite Decomposition to Ferrite in Polycrystalline Fe-C Alloys, by Vandermeer, R.A., *Acta Metallurgica et Materialia* **38**:2461-2470, 1990.

On a Stochastic Theory of Grain-Growth - III, by Pande, C.S. and Dantsker, E., *Acta Metallurgica et Materialia* **39**:1359-1365, 1991.

Plastic-Deformation Burst and Arrest Phenomena in Rapidly Heated Inconel X Under Dead Weight Loading, by Jones, H.N., *Scripta Metallurgica et Materialia* **25**:201-206, 1991.

OCEAN SCIENCE AND TECHNOLOGY

Breaking Waves Affecting Microwave Backscatter. 1. Detection and Verification, by Jessup, A.T., Melville, W.K., and Keller, W.C., *Journal of Geophysical Research* **96**:547-559, 1991.

Breaking Waves Affecting Microwave Backscatter. 2. Dependence on Wind and Wave Conditions, by Jessup, A.T., Melville, W.K., and Keller, W.C., *Journal of Geophysical Research* **96**:561-569, 1991.

A Comparison of K_u-Band Doppler Measurements at 20° Incidence with Predictions from a Time-Dependent Scattering Model, by Thompson, D.R., Gotwols, B.L., and Keller, W.C., *Journal of Geophysical Research* **96**:4947-4955, 1991.

The Generation and Evolution of Mushroom-Like Vortices, by Mied, R.P., McWilliams, J.C., and Lindemann, G.J., *Journal of Physical Oceanography* **21**:489-510, 1991.

Intrusions and Diffusive Interfaces in a Salt-Finger Staircase, by Marmorino, G.O., *Deep-Sea Research Part A - Oceanographic Research Papers* **38**:1431-1454, 1991.

Measurements of Electromagnetic Bias in Radar Altimetry, by Melville, W.K., Stewart,

R.H., Keller, W.C., Kong, J.A., Arnold, D.V., Jessup, A.T., Loewen, M.R., and Slinn, A.M., *Journal of Geophysical Research* **96**:4915-4924, 1991.

Single Ping ADCP Data, by Trump, C.L., *IEEE Journal of Oceanic Engineering* **16**:382-389, 1991.

Waves Generated by a Moving Point-Source Within a Finite-Depth Ocean, by Lanzano, P., *Earth Moon and Planets* **52**:233-252, 1991.

OPTICAL SCIENCES

Absorption Effects on Microdroplet Resonant Emission Structure, by Chylek, P., Lin, H.B., Eversole, J.D., and Campillo, A.J., *Optics Letters* **16**:1723-1725, 1991.

Achromatic Multibeam Coupling in $\text{KNbO}_3:\text{Rb}$, by Rabinovich, W.S., Gilbreath, G.C., and Feldman, B.J., *Optics Communications* **80**:317-323, 1991.

Below-Bandgap Refractive-Index of AlAs GaAs Multiple Quantum-Wells, by Hubler, G.K., Waddell, C.N., Donovan, E.P., and Zavada, J.M., *Optical and Quantum Electronics* **23**:S883-S893, 1991.

Chalcohalide Glasses for Infrared Fiber Optics, by Heo, J., Sanghera, J.S., and MacKenzie, J.D., *Optical Engineering* **30**:470-479, 1991.

Correlation of Defect Centers with a Wavelength-Dependent Photosensitive Response in Germania-Doped Silica Optical Fibers, by Simmons, K.D., Larochelle, S., Mizrahi, V., Stegeman, G.I., and Griscom, D.L., *Optics Letters* **16**:141-143, 1991.

Modal Evolution of Induced Second Harmonic Light in an Optical Fiber, by Osterberg, U., Lawconnell, R.I., Brambani, L.A., Askins, C.G., and Friebele, E.J., *Optics Letters* **16**:132-134, 1991.

Optical Matched Filter with Log-CFAR Detection, by Denningham, R.L., Griffin, R.D., and Lee, J.N., *Applied Optics* **30**:181-182, 1991.

Photorefractive Two Beam Coupling with White Light, by Rabinovich, W.S. and Feldman, B.J., *Optics Letters* **16**:708-710, 1991.

Roughness Measurements of Si and Al by Variable Angle Spectroscopic Ellipsometry, by Blanco, J.R. and McMarr, P.J., *Applied Optics* **30**:3210-3220, 1991.

Foreword: Special Issue of the JOURNAL OF LIGHTWAVE TECHNOLOGY on Optical Interconnections for Information-Processing, by Lee, J.N., Husain, A., and Crow, J., *Journal of Lightwave Technology* **9**:1633-1634, 1991.

Ultraviolet Optical Isolators Utilizing KDP-Isomorphs, by Dexter, J.L., Landry, J.E., Cooper, D.G., and Reintjes, J.F., *Optics Communications* **80**:115-118, 1990.

PHYSICS

All-Electron First-Principles Supercell Total-Energy Calculation of the Vacancy Formation Energy in Aluminum, by Mehl, M.J. and Klein, B.M., *Physica B* **172**:211-215, 1991.

Analysis of Magnesiumlike Spectra from Mo XXXI Cs XLIV, by Ekberg, J.O., Feldman, U., Seely, J.F., Brown, C.M., MacGowan, B.J., Kania, D.R., and Keane, C.J., *Physica Scripta* **43**:19-32, 1991.

Calculation of the Electron Momentum Density and Compton-Scattering Measurements for Nickel, by Anastassopoulos, D.L., Priftis, G.D., Papanicolaou, N.I., Bacalis, N.C., and Papaconstantopoulos, D.A., *Journal of Physics - Condensed Matter* **3**:1099-1111, 1991.

Convolution Integral Formulation of Dispersive Diffusion Transport: Numerical-Solutions for the Coupling Model Waiting Time Distribution, by Rendell, R.W. and Ngai, K.L., *Journal of Non-Crystalline Solids* **131**:667-670, 1991.

Critical Current Model Analysis of Intergrain and Intragrain Effects in a High-Density Sintered Ti-Ba-Ca-Cu-O Ceramic, by Navarro, R., Lera, F., Badia, A., Rillo, C., Bartolome, J., Lechter, W.L., and Toth, L.E., *Physica C* **183**:73-82, 1991.

- Crossover from Three Dimensional XY to Tricritical Behavior for the Nematic-Smectic-A Phase Transition**, by Nounesis, G., Garland, C.W., and Shashidhar, R., *Physical Review A* **43**:1849-1856, 1991.
- Diffusion with Memory - A Model for Mixed Alkali Effects in Vitreous Ionic Conductors**, by Bunde, A., Ingram, M.D., Maass, P., and Ngai, K.L., *Journal of Physics A - Mathematical and General* **24**:L881-L886, 1991.
- Driving Systems with Chaotic Signals**, by Pecora, L.M. and Carroll, T.L., *Physical Review A* **44**:2374-2383, 1991.
- The Effect of Chlorine on the Sputter Etch Rate of Nickel**, by Kant, R.A. and Sartwell, B.D., *Nuclear Instruments and Methods in Physics Research Section B* **59**:89-92, 1991.
- Effects of Environmental Weathering on the Properties of ASC-Whetlerite**, by Rossin, J., Petersen, E., Tevault, D., Lamontagne, R., and Isaacson, L., *Carbon* **29**:197-205, 1991.
- Evaluation of Pulsed Radiation Effects in Buried Oxides by Fast C-V Measurements**, by Simons, M., Campisi, G., and Hughes, H.L., *Journal of Applied Physics* **70**:4784-4789, 1991.
- Evidence of Modification of Solvent Reorientation Dynamics from Depolarized Rayleigh Spectra of Polymer in Aroclor Solutions**, by Fytas, G. and Ngai, K.L., *Journal of Non-Crystalline Solids* **131**:544-550, 1991.
- Exact Integral Operator Form of the Wigner Distribution-Function Equation in Many-Body Quantum Transport Theory**, by Buot, F.A., *Journal of Statistical Physics* **61**:1223-1256, 1990.
- Finite Electron Range and Its Implications for Superconducting Photon Detectors**, by Wood, K.S., Lovellette, M.M., and Vanvechten, D., *Physica B* **169**:439-440, 1991.
- Foil Focusing of Electron-Beams**, by Fernsler, R.F., Hubbard, R.F., and Slinker, S.P., *Journal of Applied Physics* **68**:5985-5994, 1990.
- From Conformational Transitions in a Polymer-Chain to Segmental Relaxation in a Bulk Polymer**, by Ngai, K.L. and Rendell, R.W., *Journal of Non-Crystalline Solids* **131**:942-948, 1991.
- Glass-Formation and Thermal-Properties of Low-Silica Calcium Aluminosilicate Glasses**, by Higby, P.L., Ginther, R.J., Aggarwal, I.D., and Friebele, E.J., *Journal of Non-Crystalline Solids* **126**:209-215, 1990.
- Inelastic Molecule-Corrugated Surface Scattering Using the Close-Coupling Wave-Packet Method**, by Mowrey, R.C. and Kouri, D.J., *Computer Physics Communications* **63**:100-114, 1991.
- Intensity-Dependent Upconversion Efficiencies of Er^{3+} Ions in Heavy-Metal Fluoride Glass**, by Yeh, D.C., Sibley, W.A., Schneider, I., Afzal, R.S., and Aggarwal, I.D., *Journal of Applied Physics* **69**:1648-1653, 1991.
- Ionization of Sodium and Lithium Rydberg Atoms by 10-MHz to 15-GHz Electric-Fields**, by Mahon, C.R., Dexter, J.L., Pillet, P., and Gallagher, T.F., *Physical Review A* **44**:1859-1873, 1991.
- Line-Narrowing Approaches to Solid State NMR Imaging: Pulsed Gradients and 2nd Averaging**, by Miller, J.B., Cory, D.G., and Garroway, A.N., *Philosophical Transactions of the Royal Society of London Series A - Physical Sciences and Engineering* **333**:413-426, 1990.
- Local-Density-Approximation-Based Simulations of Hydrocarbon Interactions with Applications to Diamond Chemical Vapor-Deposition**, by Pederson, M.R., Jackson, K.A., and Pickett, W.E., *Physical Review B - Condensed Matter* **44**:3891-3899, 1991.
- Localized Segmental Motion and Brillouin-Scattering in a Polymer Liquid**, by Wang, C.H., Li, B.Y., Rendell, R.W., and Ngai, K.L., *Journal of Non-Crystalline Solids* **131**:870-876, 1991.
- Mixed Alkali Effects in Ionic Conductors - A New Model and Computer-Simulations**, by Bunde, A., Ingram, M.D., Maass, P., and Ngai, K.L., *Journal of Non-Crystalline Solids* **131**:1109-1112, 1991.

Nature of the Linear Frequency-Dependent AC-Conductivity in Glassy Ionic Conductors, by Strom, U., Ngai, K.L., and Kanert, O., *Journal of Non-Crystalline Solids* **131**:1011-1017, 1991.

Neutron Detection via Long-Range Events Resulting from Fission in Thick U^{235} Disks, by August, R.A., Phillips, G.W., and Cutchin, J.H., *Nuclear Instruments and Methods in Physics Research Section A* **299**:33-37, 1990.

Nuclear-Spin Relaxation and Atomic Motion in Inorganic Glasses, by Kanert, O., Steinert, J., Jain, H., and Ngai, K.L., *Journal of Non-Crystalline Solids* **131**:1001-1010, 1991.

Potential-Harmonic Expansion for Atomic Wave-Functions, by Delaripelle, M.F., Haftel, M.I., and Larsen, S.Y., *Physical Review A* **44**:7084-7091, 1991.

A Proton-Beam Facility for Single Event Research, by Murray, K.M., Stapor, W.J., and Castenada, C., *Nuclear Instruments and Methods in Physics Research Section B* **56-57**:1256-1259, 1991.

Proton-Induced Displacement Damage Fluctuations in Silicon Microvolumes, by Marshall, P.W., Dale, C.J., and Burke, E.A., *Nuclear Instruments and Methods in Physics Research Section B* **56/57**:847-850, 1991.

Pseudoperiodic Driving - Eliminating Multiple Domains of Attraction Using Chaos, by Pecora, L.M. and Carroll, T.L., *Physical Review Letters* **67**:945-948, 1991.

Rise Time Spectroscopy of Protons and Alphas in a Stilbene Scintillator, by Harihar, P., Stapor, W.J., Campbell, A.B., and Knudson, A.R., *Nuclear Instruments and Methods in Physics Research Section A Equipment* **302**:469-471, 1991.

Symmetry and Ferromagnetic Clusters, by Dunlap, B.I., *Zeitschrift fur Physik D - Atoms Molecules and Clusters* **19**:255-257, 1991.

Temperature-Dependence of the Stretched Exponent in Structural Relaxation of Fragile Glass-Forming Molecular Liquids, by Ngai, K.L., *Journal of Non-Crystalline Solids* **131**:80-83, 1991.

Theory of Surface Spin-Exchange Recombination of Spin-Polarized Hydrogen, by Christou, C.T. and Haftel, M.I., *Few-Body Systems* **9**:195-210, 1990.

Thermal Expansion of $TiAl+TiB_2$ Alloys and Model Calculations of Stresses and Expansion of Continuous Fiber Composites, by Hahn, T.A., *International Journal of Thermophysics* **12**:711-722, 1991.

Toward a Theory of Relaxation in Correlated Systems: Diffusion in the Phase Space of a Chaotic Hamiltonian, by Ngai, K.L. and Rendell, R.W., *Journal of Non-Crystalline Solids* **131**:233-237, 1991.

Vacuum Technology Facilitates Materials Science, by Colton, R.J. and Marrian, C.R.K., *Laser Focus World* **27**:119, 1991.

Variational Monte Carlo Evaluations of Gutzwiller States for the Anderson-Lattice Model, by McQueen, P.G. and Wang, C.S., *Physical Review B - Condensed Matter* **44**:10021-10030, 1991.

Volume-Dependent Rate-Processes Predicted by the Coupling Model, by Rendell, R.W., Ngai, K.L., and Plazek, D.J., *Journal of Non-Crystalline Solids* **131**:442-450, 1991.

Wavelengths and Energy-Levels for the NaI Isoelectronic Sequence Y^{28+} Through U^{81+} , by Seely, J.F., Brown, C.M., Feldman, U., Ekberg, J.O., Keane, C.J., MacGowan, B.J., Kania, D.R., and Behring, W.E., *Atomic Data and Nuclear Data Tables* **47**:1-15, 1991.

Where are the Jobs for Young Physicists, by Aylesworth, K., *Physics Today* **44**:99, 1991.

Why is a Physics PhD Like a Juggler - Reply, by Aylesworth, K., *Physics Today* **44**:11, 1991.

PLASMA PHYSICS

Absorption at the Ion-Ion Hybrid-Resonance in the Presence of Incoherent Density-Fluctuations, by Romero, H. and Morales, G.J., *Physics of Fluids B - Plasma Physics* **3**:2960-2966, 1991.

Aluminum Wire Array Implosions - Comparison of Experiments and Simulation, by Giuliani, J.L., Rogerson, J.E., Deeney, C., Nash, T., Prasad, R.R., and Krishnan, M., *Journal of Quantitative Spectroscopy and Radiative Transfer* **44**:471-484, 1990.

Calculation of the Line Emission from Cylindrical Krypton Plasmas Using a 162-Level, 511-Line Detailed Configuration Atomic Model, by Apruzese, J.P. and Kepple, P.C., *Journal of Quantitative Spectroscopy and Radiative Transfer* **44**:529-540, 1990.

A Depressed Collector System for a Quasi-Optical Gyrotron with Precisely Controlled Magnetic-Flux Lines, by Singh, A., Granatstein, V.L., Hazel, G., Saraph, G., Cooperstein, J.M., and Hargreaves, T., *International Journal of Infrared and Millimeter Waves* **12**:323-334, 1991.

Design of an 85 Ghz $TE_{1,3}$ Phase-Locked Gyroklystron Oscillator Experiment, by Burke, J.M., Czarnaski, M.A., Fischer, R.P., Fliflet, A.W., and Manheimer, W.M., *International Journal of Electronics* **70**:1109-1130, 1991.

The Effect of Bandwidth on the Convective Raman Instability in Inhomogeneous Plasmas, by Guzdar, P.N., Liu, C.S., and Lehmberg, R.H., *Physics of Fluids B - Plasma Physics* **3**:2882-2888, 1991.

The Effect of Induced Spatial Incoherence on the Absolute Raman Instability, by Guzdar, P.N., Tan, W., Lee, Y.C., Liu, C.S., and Lehmberg, R.H., *Physics of Fluids B - Plasma Physics* **3**:776-780, 1991.

Frequency Up-Shifting of Laser Pulses by Copropagating Ionization Fronts, by Esarey, E., Joyce, G., and Sprangle, P., *Physical Review A* **44**:3908-3911, 1991.

Increased X-Ray Conversion Efficiency from Gold Plasmas Irradiated with Spatially and Temporally Incoherent-Light, by Kania, D.R., Krueer, W.L., Bell, P., Obenschain, S.P., Kearney, K.J., and Mostovych, A., *Physics of Fluids B - Plasma Physics* **3**:1496-1500, 1991.

Measurements of Vacuum Field-Emission from Bio-Molecular and Semiconductor-

Metal Eutectic Composite Microstructures, by Kirkpatrick, D.A., Schoen, P.E., Stockton, W.B., Price, R., Baral, S., Kahn, B.E., Schnur, J.M., Levinson, M., and Ditchek, B.M., *IEEE Transactions on Plasma Science* **19**:749-756, 1991.

Neutron-Production in Dense X-Pinch Plasmas Produced from Deuterated Polyethylene Fibers, by Mittal, K.C., Kalantar, D.H., Qi, N., Hammer, D.A., Gerber, K.A., and Sethian, J.D., *Journal of Applied Physics* **70**:6712-6717, 1991.

A New Procedure for Analyzing X-Ray-Spectra from Laboratory Plasmas, by Coulter, M.C., Whitney, K.G., and Thornhill, J.W., *Journal of Quantitative Spectroscopy and Radiative Transfer* **44**:443-456, 1990.

Ohmic Effects in Quasioptical Resonators, by Hargreaves, T.A., Fischer, R.P., McCowan, R.B., and Fliflet, A.W., *International Journal of Infrared and Millimeter Waves* **12**:9-21, 1991.

Phase-Stability of Gyroklystron Amplifier, by Park, G.S., Granatstein, V.L., Latham, P.E., Armstrong, C.M., Ganguly, A.K., and Park, S.Y., *IEEE Transactions on Plasma Science* **19**:632-640, 1991.

Plasma Production from Ultraviolet-Transmitting Targets Using Subpicosecond Ultraviolet Radiation, by Zigler, A., Burkhalter, P.G., Nagel, D.J., Rosen, M.D., Boyer, K., Luk, T.S., McPherson, A., and Rhodes, C.K., *Optics Letters* **16**:1261-1263, 1991.

Quantitative X-Ray Spectroscopy of Sodium Z-Pinch Plasmas for Na/Ne Photopumping, by Burkhalter, P.G., Mehlman, G., Apruzese, J.P., Newman, D.A., Scherrer, V.E., Young, F.C., Stephanakis, S.J., and Hinshelwood, D.D., *Journal of Quantitative Spectroscopy and Radiative Transfer* **44**:495-507, 1990.

Radius Scaling Effects in Nickel Wire Array Z-Pinches, by Deeney, C., Nash, T., Lepell, P.D., Childers, K., Krishnan, M., Whitney, K.G., and Thornhill, J.W., *Journal of Quantitative Spectroscopy and Radiative Transfer* **44**:457-469, 1990.

Reduction of $3\omega_0/2$ Emission from Laser-Produced Plasmas with Broad Bandwidth,

Induced Spatial Incoherence at 0.53 μm , by Peyser, T.A., Manka, C.K., Obenschain, S.P., and Kearney, K.J., *Physics of Fluids B - Plasma Physics* **3**:1479-1484, 1991.

Role of the Implosion Kinetic Energy in Determining the Kilovolt X-Ray-Emission from Aluminum-Wire-Array Implosions, by Deeney, C., Nash, T., Prasad, R.R., Warren, L., Whitney, K.G., Thornhill, J.W., and Coulter, M.C., *Physical Review A* **44**:6762-6775, 1991.

Special Issue - Radiation and Spectroscopy of Pulse-Power-Driven Plasmas - Guest Editorial, by Davis, J. and Duston, D., *Journal of Quantitative Spectroscopy and Radiative Transfer* **44**:R5-R9, 1991.

Theory of Wake-Field Effects of a Relativistic Electron Beam Propagating in a Plasma, by Uhm, H.S. and Joyce, G., *Physics of Fluids B - Plasma Physics* **3**:1587-1598, 1991.

X-Pinch Wire Load Experiments on Blackjack-5, by Loter, N., Gersten, M., Grandey, R., Rauch, J., Ware, K., Coulter, M.C., Davis, J., and Whitney, K., *Journal of Quantitative Spectroscopy and Radiative Transfer* **44**:509-518, 1990.

Z-Discharge Transport of Intense Ion-Beams for Inertial Confinement Fusion, by Ottinger, P.F., Rose, D.V., Mosher, D., and Neri, J.M., *Journal of Applied Physics* **70**:5292-5305, 1991.

RADAR

Adaptive Canceler and Pulse Compressor Interactions, by Gerlach, K.R., *IEEE Transactions on Aerospace and Electronic Systems* **27**:331-342, 1991.

A Coherent mm-Wave Radar Using Incoherent Transmitter, by Lohrmann, D.R., *Microwave Journal* **34**:150-152, 1991.

Convergence Properties of Gram-Schmidt and SMI Adaptive Algorithms - Reply, by Gerlach, K.R. and Kretschmer, F.F., *IEEE Transactions on Aerospace and Electronic Systems* **27**:899-901, 1991.

Low Sidelobe Radar Wave-Forms Derived from Orthogonal Matrices, by Kretschmer, F.F. and Gerlach, K.R., *IEEE Transactions on Aerospace and Electronic Systems* **27**:92-102, 1991.

Nonlinear Modeling of Gated Range Tracker Dynamics with Application to Radar Range Resolution, by Abed, E.H., Goldberg, A.J., and Gover, R.E., *IEEE Transactions on Aerospace and Electronic Systems* **27**:68-82, 1991.

SOLID STATE

10-20 MeV Energy-Range Si Implantations into InP-Fe, by Nadella, R.K., Rao, M.V., Simons, D.S., Chi, P.H., and Dietrich, H.B., *Journal of Applied Physics* **70**:7188-7190, 1991.

Adsorption of As on Stepped Si(100): Resolution of the Sublattice-Orientation Dilemma, by Alerhand, O.L., Wang, J., Joannopoulos, J.D., Kaxiras, E., and Beck, R.S., *Physical Review B - Condensed Matter* **44**:6534-6537, 1991.

All-Electron and Pseudopotential Force Calculations Using the Linearized-Augmented-Plane-Wave Method, by Yu, R.C., Singh, D., and Krakauer, H., *Physical Review B - Condensed Matter* **43**:6411-6422, 1991.

Analysis of Valanis Criticism - Closure, by Fazio, C.J., *International Journal of Solids and Structures* **28**:663-664, 1991.

Application of 1st Principles Methods in Exploring for New Materials, by Boyer, L.L., *Ferroelectrics* **120**:7-10, 1991.

Axial Channeling in Perfect Crystals, the Continuum Model, and the Method of Averaging, by Dumas, H.S., Ellison, J.A., and Saenz, A.W., *Annals of Physics* **209**:97-123, 1991.

Brillouin Scattering from Ion-Beam-Sputtered Cu/Ni Superlattices, by Kumar, S., Bhadra, R., Fartash, A., Grimsditch, M., Kim, C., Qadri, S.B., and Edelstein, A.S., *Physical Review B - Condensed Matter* **44**:5905-5907, 1991.

- Buckle Formation in Vacuum-Deposited Thin-Films**, by Yu, H.Y., Kim, C., and Sanday, S.C., *Thin Solid Films* **196**:229-233, 1991.
- Calculation of the Superconducting Parameter (I_2) for HCP Transition Metals**, by Jiang, C.G., Fletcher, G., Fry, J.L., and Papaconstantopoulos, D.A., *Physical Review B - Condensed Matter* **44**:2268-2275, 1991.
- CaNiN: Suppression of Electronic Instability by Interchain Coupling**, by Massidda, S., Pickett, W.E., and Posternak, M., *Physical Review B - Condensed Matter* **44**:1258-1265, 1991.
- Carrier Concentration Determination by Photoreflectance at E1 in Thin-Film, Highly Doped GaAs**, by Badakhshan, A., Glosser, R., Lambert, S., Anthony, M., Sillmon, R.S., Thompson, P.E., and Alavi, K., *Applied Physics Letters* **59**:1218-1220, 1991.
- Characterizing Chaos in Magnetostatic Modes**, by Carroll, T.L., Pecora, L.M., and Rachford, F.J., *Journal of Applied Physics* **69**:5727-5729, 1991.
- Circular Dislocation Loops in Bimaterials**, by Yu, H.Y. and Sanday, S.C., *Journal of Physics - Condensed Matter* **3**:3081-3090, 1991.
- Comparative Study of Microwave Surface Impedance of High T_c Superconductor Samples**, by Llopis, O., Parra, T., Ousset, J.C., Chrisey, D.B., Horwitz, J.S., and Graffeuil, J., *Solid State Communications* **78**:631-633, 1991.
- Correlation of Magnetic Properties and Local Atomic Structure Observed by Electron-Yield EXAFS in Amorphous $\text{Co}_{74}\text{Fe}_8\text{B}_{18}\text{Si}_5$ Thin Films**, by Harris, V.G., Oliver, S.A., Nowak, W.B., Vittoria, C., Kim, K.H., and Elam, W.T., *Journal of Applied Physics* **69**:5457-5459, 1991.
- Critical-Current Enhancement in Particle-Irradiated Cuprate Semiconductors**, by Weaver, B.D., Reeves, M.E., Summers, G.P., Soulen, R.J., Olson, W.L., Eddy, M.M., James, T.W., and Smith, E.J., *Applied Physics Letters* **59**:2600-2602, 1991.
- Deformation Behavior of CdTe and (Cd,Zn) Te Single Crystals Between 200 and 60°C**, by Rai, R.S., Mahajan, S., Michel, D.J., Smith, H.H., McDevitt, S., and Johnson, C.J., *Materials Science and Engineering B - Solid State Materials for Advanced Technology* **10**:219-225, 1991.
- Determination of Surface Resistance and Magnetic Penetration Depth of Superconducting $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Thin Films by Microwave Power Transmission Measurements**, by Bhasin, K.B., Warner, J.D., Miranda, F.A., Gordon, W.L., and Newman, H.S., *IEEE Transactions on Magnetics* **27**:1284-1287, 1991.
- Diamond Synthesis in Oxygen-Acetylene Flames - Inhomogeneities and the Effects of Hydrogen Addition**, by Oakes, D.B., Butler, J.E., Snail, K.A., Carrington, W.A., and Hanssen, L.M., *Journal of Applied Physics* **69**:2602-2610, 1991.
- Diamond-Nickel Interfaces - Calculation of the Electronic and Atomic-Structure and Schottky Barriers**, by Erwin, S.C. and Pickett, W.E., *Surface and Coatings Technology* **47**:487-495, 1991.
- Disclinations in Bimaterials**, by Yu, H.Y. and Sanday, S.C., *Physica Status Solidi A - Applied Research* **126**:355-365, 1991.
- Donor Impact Ionization and Electron Heating in a $\text{GaAs}/\text{Al}_x\text{Ga}_{1-x}\text{As}$ Superlattice**, by Snow, E.S., Campbell, P.M., and Gammon, D., *Superlattices and Microstructures* **8**:215-220, 1990.
- Dose-Rate Dependent Electrical Activation of Silicon and Sulfur Implanted into GaAs**, by Moore, F.G. and Dietrich, H.B., *Nuclear Instruments and Methods in Physics Research Section B - Beam Interactions with Materials and Atoms* **59**:978-980, 1991.
- The Effect of Charge State on the Local Vibrational-Mode Absorption of the Carbon Acceptor in Semi-Insulating GaAs - Comment**, by Moore, W.J. and Shanabrook, B.V., *Journal of Applied Physics* **69**:6731-6732, 1991.
- Effect of Magnetic Field on Thermal Conductivity of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Single Crystals**, by Peacor, S.D., Cohn, J.L., and Uher, C.,

- Physical Review B - Condensed Matter* **43**:8721-8724, 1991.
- Effect of Surface Reconstruction on Stability and Reactivity of Si Clusters - Reply**, by Kaxiras, E., *Physical Review Letters* **66**:2687, 1991.
- Effect of Thermochemical Treatments on the Strength and Microstructure of SiC Fibers**, by Bender, B.A., Wallace, J.S., and Schrodtt, D.J., *Journal of Materials Science* **26**:970-976, 1991.
- Effects of Neutron and Electron Irradiation on the Absorption Edge of GaAs**, by Parenteau, M., Carlone, C., Aubin, M., Khanna, S.M., Anderson, W.T., and Gerdes, J.W., *Canadian Journal of Physics* **69**:324-328, 1991.
- Effects of Surface Pretreatments on Nucleation and Growth of Diamond Films on a Variety of Substrates**, by Morrish, A.A. and Pehrsson, P.E., *Applied Physics Letters* **59**:417-419, 1991.
- Electron Spin Resonance of Defects in Silicon-on-Insulator Structures Formed by Oxygen Implantation: Influence of γ -Irradiation**, by Stesmans, A., Revesz, A.G., and Hughes, H.L., *Journal of Applied Physics* **69**:175-181, 1991.
- Electronic Structure of Doped Sr_2VO_4** , by Singh, D.J., Papaconstantopoulos, D.A., Krakauer, H., Klein, B.M., and Pickett, W.E., *Physica C* **175**:329-334, 1991.
- Electronic-Structure and Electron-Phonon Coupling in Layered Copper-Oxide Superconductors**, by Pickett, W.E., Cohen, R.E., and Krakauer, H., *Physica B* **169**:45-50, 1991.
- Electronic-Structure of Crystalline K_6C_{60}** , by Erwin, S.C. and Pederson, M.R., *Physical Review Letters* **67**:1610-1613, 1991.
- Electroreflectance Studies of Asymmetrically Coupled Quantum Wells**, by Glembocki, O.J., Snow, E.S., Little, R.W., and Leavitt, R.P., *Superlattices and Microstructures* **10**:77-82, 1991.
- Enhanced Radiative Recombination of Free-Excitons in GaAs Quantum-Wells**, by Deveaud, B., Clerot, F., Roy, N., Satzke, K., Sermage, B., and Katzer, D.S., *Physical Review Letters* **67**:2355-2358, 1991.
- Entropy Calculation Beyond the Harmonic Approximation - Application to Diffusion by Concerted Exchange in Si**, by Pandey, K.C. and Kaxiras, E., *Physical Review Letters* **66**:915-918, 1991.
- Epitaxial Growth of β -SiC on Silicon-on-Sapphire Substrates by Chemical Vapor Deposition**, by Pazik, J.C., Kelner, G., and Bottka, N., *Applied Physics Letters* **58**:1419-1421, 1991.
- An Error Measure for Dose Correction in e-Beam Nanolithography**, by Pati, Y.C., Teolis, A., Park, D., Bass, R., Rhee, K., Bradie, B., and Peckerar, M.C., *Journal of Vacuum Science and Technology B* **8**:1882-1888, 1990.
- Etching Roughness for (100) Silicon Surfaces in Aqueous KOH**, by Palik, E.D., Glembocki, O.J., Heard, I., Burno, P.S., and Tenerz, L., *Journal of Applied Physics* **70**:3291-3300, 1991.
- Etching Studies of Stress-Induced Surface Polygonization in SI GaAs Wafers**, by Prokes, S.M., Gorman, R., and Lessoff, H., *Materials Letters* **10**:400-403, 1991.
- Experimental-Evidence for Excitonic Mechanism of Defect Generation in High-Purity Silica**, by Tsai, T.E. and Griscom, D.L., *Physical Review Letters* **67**:2517-2520, 1991.
- First Principles Calculations for Polarized Crystals**, by Boyer, L.L., Cohen, R.E., Edwardson, P.J., and Krakauer, H., *Ferroelectrics* **117**:233-243, 1991.
- Fourier-Transform Raman Spectroscopy of Superconducting $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Films on Strontium-Titanate and Magnesium-Oxide Substrates**, by Bist, H.D., Datta, T., Little, T.S., Thigpen, J.C., Durig, J.R., Broussard, P.R., and Berkley, D.D., *Journal of Raman Spectroscopy* **22**:639-643, 1991.
- GaAs Vertical pin Diode Using MeV Implantation**, by Rao, M.V., Kruppa, W.,

- Dietrich, H.B., Binari, S.C., and Boos, J.B., *Electronics Letters* **27**:2265-2267, 1991.
- Growth of (100)GaAs by Vertical Zone Melting**, by Henry, R.L., Nordquist, P.E.R., Gorman, R.J., and Qadri, S.B., *Journal of Crystal Growth* **109**:228-233, 1991.
- Growth of As Overlayers on Vicinal Si(100) Surfaces**, by Alerhand, O.L., Wang, J., Joannopoulos, J.D., and Kaxiras, E., *Journal of Vacuum Science and Technology B* **9**:2423-2426, 1991.
- High-Energy Si Implantation into InP-Fe**, by Nadella, R.K., Rao, M.V., Simons, D.S., Chi, P.H., Fatemi, M., and Dietrich, H.B., *Journal of Applied Physics* **70**:1750-1757, 1991.
- High-Intensity Generation of 9-13 Å X-Rays from BaF₂ Targets**, by Zigler, A., Burkhalter, P.G., Nagel, D.J., Boyer, K., Luk, T.S., McPherson, A., Solem, J.C., and Rhodes, C.K., *Applied Physics Letters* **59**:777-778, 1991.
- High-Tc Superconductivity of YBa₂Cu₃O₇/PrBa₂Cu₃O₇ Superlattices: An Interlayer-Coupling Model**, by Rajagopal, A.K. and Mohanti, S.D., *Physical Review B - Condensed Matter* **44**:10210-10214, 1991.
- High-Temperature Superconductivity Space Experiment (HTSSE)**, by Ritter, J.C., Nisenoff, M., Price, G., and Wolf, S.A., *IEEE Transactions on Magnetics* **27**:2533-2536, 1991.
- In-Band Nonlinear Optical Properties of Pb_{1-x}Sn_xSe**, by Youngdale, E.R., Meyer, J.R., Hoffman, C.A., Bartoli, F.J., and Martinez, A., *Solid State Communications* **80**:95-99, 1991.
- In_{0.53}Ga_{0.47}As Photodetector Using Proton Bombarded P-Type Material**, by Rao, M.V., Hong, W.P., Caneau, C., Chang, G.K., Papanicolaou, N., and Dietrich, H.B., *Journal of Applied Physics* **70**:3943-3945, 1991.
- Infrared Reflection Absorption Spectroscopy of Adsorbates on Semiconductors with Buried Metal Layers - O₂/GaAs**, by Bermudez, V.M. and Prokes, S.M., *Surface Science* **248**:201-206, 1991.
- Infrared Reflection Absorption Spectroscopy Study of the Chemisorption of Small Molecules (H₂, O₂ and H₂O) on Silicon**, by McGonigal, M., Bermudez, V.M., and Butler, J.E., *Journal of Electron Spectroscopy and Related Phenomena* **54**:1033-1044, 1990.
- Interpreting the Near Edges of O₂ and O₂-In Alkali-Metal Superoxides**, by Ruckman, M.W., Chen, J., Qiu, S.L., Kuiper, P., Strongin, M., and Dunlap, B.I., *Physical Review Letters* **67**:2533-2536, 1991.
- Investigation of ErBa₂Cu₃O₇/Cu₂O/Normal Metal Tunnel Structures**, by Thorpe, T.P., Cukauskas, E.J., Allen, L.H., and Reeves, M.E., *IEEE Transactions on Magnetics* **27**:1332-1334, 1991.
- Investigation of the MBE Growth of GaAs/AlAs Quantum Wells and the Effect of AlAs Spikes on Their Luminescence**, by Katzer, D.S., Gammon, D., Shanabrook, B.V., and Tadayon, B., *Superlattices and Microstructures* **8**:19-24, 1990.
- Kinetic Energy and Vibrational State Population Distribution of Ar₂⁺ Dimers Desorbed from MeV Ion-Excited Solid Argon Films**, by Reimann, C.T., Brown, W.L., Grosjean, D.E., Nowakowski, M.J., Buller, W.T., Cui, S.T., and Johnson, R.E., *Nuclear Instruments and Methods in Physics Research Section B* **58**:404-410, 1991.
- Kinetics of Silicide Formation in Chromium-Amorphous Silicon Multilayered Films**, by Schlesinger, T.E., Cammarata, R.C., and Prokes, S.M., *Applied Physics Letters* **59**:449-451, 1991.
- Large-Area Mosaic Diamond Films Approaching Single-Crystal Quality**, by Geis, M.W., Smith, H.I., Argoitia, A., Angus, J., Ma, G.H.M., Glass, J.T., Butler, J., Robinson, C.J., and Pryor, R., *Applied Physics Letters* **58**:2485-2487, 1991.
- Lattice-Gas Approach to Semiconductor Device Simulation**, by Ancona, M.G., *Solid-State Electronics* **33**:1633-1642, 1990.
- Lithography with a 50 kv e-Beam and a Vacuum Scanning Tunneling Microscope in a Polydiacetylene Negative Resist**, by

Dobisz, E.A., Marrian, C.R.K., and Colton, R.J., *Journal of Vacuum Science and Technology B* **8**:1754-1758, 1990.

Magnetic Coupling in High Moment f.c.c. Fe/Ni Multilayers, by Edelstein, A.S., Kim, C., Qadri, S.B., Kim, K.H., Browning, V., Yu, H.Y., Maruyama, B., and Everett, R.K., *Solid State Communications* **76**:1379-1382, 1990.

Magnetic Properties and Local Ordering During Thermal Annealing of Amorphous Fe₇₅Ni₅B₁₅Si₅, by Oliver, S.A., Harris, V.G., Vittoria, C., Elam, W.T., Kim, K.H., Hamdeh, H.H., and Alhabash, M., *Journal of Applied Physics* **70**:5852-5854, 1991.

Magnetic Properties of Ultrathin Films of Ni/Cu(001) Probed by Soft-X-Ray Magnetic Circular-Dichroism, by Tjeng, L.H., Idzerda, Y.U., Rudolf, P., Sette, F., and Chen, C.T., *Journal of Applied Physics* **70**:5939-5939, 1991.

Magnetoresistance Origin for Nonresonant Microwave Absorption in Antiferromagnetically Coupled Epitaxial Fe/Cr/Fe(001) Sandwiches, by Krebs, J.J., Lubitz, P., Chaiken, A., and Prinz, G.A., *Journal of Applied Physics* **69**:4795-4797, 1991.

Magnetostatic Modes and Chaos in Yttrium-Iron-Garnet Films, by Carroll, T.L., Pecora, L.M., and Rachford, F.J., *Journal of Applied Physics* **70**:3197-3208, 1991.

Major Parameters of High T_c Oxides, by Wolf, S.A. and Kresin, V.Z., *IEEE Transactions on Magnetics* **27**:852-853, 1991.

Measurement of Energy Penetration Depth of Subpicosecond Laser Energy into Solid Density Matter, by Zigler, A., Burkhalter, P.G., Nagel, D.J., Rosen, M., Boyer, K., Gibson, G., Luk, T.S., McPherson, A., and Rhodes, C.K., *Applied Physics Letters* **59**:534-536, 1991.

Methods of Analysis of Protein Crystal Images, by Zuk, W.M. and Ward, K.B., *Journal of Crystal Growth* **110**:148-155, 1991.

MeV Ion-Implantation in GaAs Technology, by Thompson, P.E., *Nuclear Instruments and Methods in Physics Research Section B* **59**:592-599, 1991.

Mismatch-Tuning by Applied Pressure in ZnSe Epilayers: Possibility for Mechanical Buffering, by Cui, L.J., Venkateswaran, U.D., Weinstein, B.A., and Jonker, B.T., *Physical Review B - Condensed Matter* **44**:10949-10952, 1991.

Mixed-State Behavior in Large Magnetic-Fields of High-Temperature Superconducting Films Prepared by Metalorganic Deposition, by McIntyre, P.C., Cima, M.J., Liebenberg, D.H., and Francavilla, T.L., *Applied Physics Letters* **58**:2033-2035, 1991.

Modeling the Growth of Semiconductor Epitaxial-Films via Nanosecond Time Scale Molecular-Dynamics Simulations, by Srivastava, D., Garrison, B.J., and Brenner, D.W., *Langmuir* **7**:683-692, 1991.

Molecular-Beam Epitaxy of a Low Strain II-VI Heterostructure: ZnTe/CdSe, by Luo, H., Samarth, N., Zhang, F.C., Pareek, A., Dobrowolska, M., Furdyna, J.K., Mahalingam, K., Otsuka, N., Chou, W.C., Petrou, A., and Qadri, S.B., *Applied Physics Letters* **58**:1783-1785, 1991.

New Low-Energy Crystal-Structure for Silicon, by Boyer, L.L., Kaxiras, E., Feldman, J.L., Broughton, J.Q., and Mehl, M.J., *Physical Review Letters* **67**:715-718, 1991.

New Surface Imaging Techniques for Sub-0.5 Micrometer Optical Lithography, by Calvert, J.M., Dulcey, C.S., Peckerar, M.C., Schnur, J.M., Georger, J.H., Calabrese, G.S., and Sricharoenchaikit, P., *Solid State Technology* **34**:77-82, 1991.

New Theoretical Model for the Diamond 1S Core Exciton, by Jackson, K.A. and Pederson, M.R., *Physical Review Letters* **67**:2521-2524, 1991.

Observation of High-Pressure Blast-Wave Decursors, by Grun, J., Stamper, J., Manka, C.K., Resnick, J., Burris, R., and Ripin, B.H., *Applied Physics Letters* **59**:246-248, 1991.

Observation of Ultrahigh Critical Current Densities in High-T_c Superconducting Bridge Constrictions, by Jiang, H., Huang, Y., How, H., Zhang, S., Vittoria, C., Widom, A.,

Chrissey, D.B., Horwitz, J.S., and Lee, R., *Physical Review Letters* **66**:1785-1788, 1991.

On Dispersions of Voids as Sources of Strength, by Louat, N.P., Duesbery, M.S., Imam, M.A., Provenzano, V., and Sadananda, K., *Philosophical Magazine Letters* **63**:159-163, 1991.

Optical and Structural Studies of Relaxation in $\text{Si}_{1-x}\text{Ge}_x/\text{Si}$ Strained Layer Superlattices, by Prokes, S.M., Glembocki, O.J., and Wang, K.L., *Superlattices and Microstructures* **10**:113-118, 1991.

Optically and Thermally Stimulated Luminescence in MgO , by Chakrabarti, K., Mathur, V.K., and Summers, G.P., *Solid State Communications* **77**:481-483, 1991.

Optically Detected Magnetic Resonance of Cubic SiC Grown By Chemical Vapor Deposition on Si, by Kennedy, T.A., Freitas, J.A., and Bishop, S.G., *Journal of Applied Physics* **68**:6170-6173, 1990.

Out-of-Plane Ferromagnetic Resonance Study of Magnetically Coupled Fe/Cr/Fe Films, by Oliver, S.A., Vittoria, C., Krebs, J.J., Lubitz, P., and Prinz, G.A., *Journal of Applied Physics* **69**:5320, 1991.

Oxyfluoride Nucleating Crystals in Fluorozirconate-Hafnate Glasses, by Sanghera, J.S., Sachon, M.G., Hart, P., and Aggarwal, I.D., *Materials Letters* **10**:181-186, 1990.

Particle Trajectory Tunneling - A Novel Approach to Quantum Transport, by Jensen, K.L. and Buot, F.A., *2nd International Conference on Vacuum Microelectronics, Institute of Physics Conference Series* **99**:137-140, 1989.

Photodetectors Fabricated on Heteroepitaxial GaAs/Si Structures Grown by Molecular-Beam Epitaxy, by Papanicolaou, N.A., Anderson, G.W., Modolo, J.A., and Georgakilas, A., *Superlattices and Microstructures* **8**:273-278, 1990.

Preparation and Characterization of MgO Thin Films Deposited by Spray Pyrolysis of $\text{Mg(2,4-Pentanedionate)}_2$, by Desisto, W.J. and Henry, R.L., *Journal of Crystal Growth* **109**:314-317, 1991.

Preparation of Thin-Films of $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-x}$ by Magnetron Sputtering Techniques, by Allen, L.H., Cukauskas, E.J., Broussard, P.R., and Vandamme, P.K., *IEEE Transactions on Magnetics* **27**:1406-1409, 1991.

Proceedings of the International Discussion Meeting on Relaxations in Complex-Systems .1. Heraklion, Crete, Greece, June 18-29, 1990 - Preface, by Ngai, K.L. and Wright, G.B., *Journal of Non-Crystalline Solids* **131**:R7-R8, 1991.

The Process-Controlled Magnetic-Properties of Nanostructured Co/Ag Composite Films, by Liou, S.H., Malhotra, S., Shan, Z.S., Sellmyer, D.J., Nafis, S., Woollam, J.A., Reed, C.P., Deangelis, R.J., and Chow, G.M., *Journal of Applied Physics* **70**:5882-5884, 1991.

Pseudoenergies for Simulations on Metallic Systems, by Pederson, M.R. and Jackson, K.A., *Physical Review B - Condensed Matter* **43**:7312, 1991.

Pulsed Laser Deposition of Oriented $\text{PbZr}_{.54}\text{Ti}_{.46}\text{O}_3$, by Grabowski, K.S., Horwitz, J.S., and Chrissey, D.B., *Ferroelectrics* **116**:19-33, 1991.

Raman-Scattering Study of Dry Etching of GaAs - A Comparison of Chemically Assisted Ion-Beam Etching and Reactive Ion Etching, by Glembocki, O.J. and Dobisz, E.A., *Journal of Vacuum Science and Technology B* **9**:1403-1407, 1991.

Range Statistics and Rutherford Backscattering Studies on Fe-Implanted $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}$, by Gulwadi, S.M., Rao, M.V., Simons, D.S., Holland, O.W., Hong, W.P., Caneau, C., and Dietrich, H.B., *Journal of Applied Physics* **69**:162-167, 1991.

Redistribution of Beryllium in InP and $\text{Ga}_{0.47}\text{In}_{0.53}\text{As}$ Grown by Hydride Source Molecular-Beam Epitaxy and Metalorganic Molecular-Beam Epitaxy, by Panish, M.B., Hamm, R.A., Ritter, D., Luftman, H.S., and Cotell, C.M., *Journal of Crystal Growth* **112**:343-353, 1991.

Relaxation of Icosahedral-Cage Silicon Clusters via Tight-Binding Molecular-Dynamics, by Khan, F.S. and Broughton, J.Q.,

Physical Review B - Condensed Matter **43**:11754-11761, 1991.

Self-Arrangement of Molybdenum Particles into Cubes, by Edelstein, A.S., Chow, G.M., Altman, E.I., Colton, R.J., and Hwang, D.M., *Science* **251**:1590-1592, 1991.

Silicon-on-Insulator Device Islands Formed by Oxygen Implantation Through Patterned Masking Layers, by Bussmann, U., Robinson, A.K., Hemment, P.L.F., and Campisi, G.J., *Journal of Applied Physics* **70**:4584-4592, 1991.

Spin Separation in Diluted Magnetic Semiconductor Quantum-Well Systems, by Jonker, B.T., Liu, X., Chou, W.C., Petrou, A., Warnock, J., Krebs, J.J., and Prinz, G.A., *Journal of Applied Physics* **69**:6097-6102, 1991.

Spin-Valve Magnetoresistance of Uncoupled Fe-Cu-Co Sandwiches, by Chaiken, A., Lubitz, P., Krebs, J.J., Prinz, G.A., and Harford, M.Z., *Journal of Applied Physics* **70**:5864-5866, 1991.

Strong Nonlinear Optical Enhancement in MBe-Grown $\text{Bi}_{1-x}\text{Sb}_x$, by Youngdale, E.R., Meyer, J.R., Hoffman, C.A., Bartoli, F.J., Partin, D.L., Thrush, C.M., and Heremans, J.P., *Journal of Crystal Growth* **111**:693-697, 1991.

Structural Study of Epitaxial Mn/Ag Multilayers, by Nahm, S., Salamancariba, L., and Jonker, B.T., *Journal of Electronic Materials* **20**:719-722, 1991.

The Study of Relaxation in Asymmetrically Strained $\text{Si}_{1-x}\text{Ge}_x/\text{Si}$ Superlattices, by Prokes, S.M., Glembocki, O.J., Twigg, M.E., and Wang, K.L., *Journal of Electronic Materials* **20**:389-394, 1991.

Submonolayer Cluster Formation at the Ge/ $\text{Al}_2\text{O}_3(1102)$ Interface, by Malafsky, G.P., *Surface Science* **249**:159-170, 1991.

A Summary of the Present Diffusionist Views on Bainite, by Reynolds, W.T., Aaronson, H.I., and Spanos, G., *Materials Transactions JIM* **32**:737-746, 1991.

Superconducting Current Leads of YBCO and Pb-BSCCO, by Gubser, D.U., Miller, M.M., Toth, L.E., Rayne, R., Lawrence, S., Alford, N.M.,

and Buttons, T.W., *IEEE Transactions on Magnetics* **27**:1854-1857, 1991.

A Superconducting Hydrogen Maser Resonator Made from Electrophoretic $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$, by Opie, D., Schone, H., Hein, M., Muller, G., Piel, H., Wehler, D., Folen, V., and Wolf, S., *IEEE Transactions on Magnetics* **27**:2944-2947, 1991.

Superconductivity - Cagey Carbon Conundrums, by Pickett, W.E., *Nature* **351**:602-603, 1991.

The Superfluid Phases of Helium 3, by Vollhardt, D., Wolfe, P., and Serene, J.W., *Science* **251**:97-98, 1991.

Surface Characterization of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin-Films Supporting Metallic and Insulating Overlayers, by Berkley, D.D., Broussard, P.R., and Ervin, A.M., *IEEE Transactions on Magnetics* **27**:966-969, 1991.

Temperature-Dependent Magnetoresistance of Fe-Ni Multilayers, by Ehrlich, A.C., Gillespie, D.J., Tritt, T.M., Kim, C., Edelstein, A.S., and Qadri, S.B., *Journal of Applied Physics* **70**:5819-5821, 1991.

Temperature-Induced Intraband Transitions in the N-Type HgTe/CdTe Superlattice - Comment, by Meyer, J.R., Hoffman, C.A., Wagner, R.J., and Bartoli, F.J., *Physical Review B - Condensed Matter* **43**:4715-4717, 1991.

Theoretical Fermi-Surface Properties and Superconducting Parameters for K_3C_{60} , by Erwin, S.C. and Pickett, W.E., *Science* **254**:842-845, 1991.

Thermal Magnons in bcc Cobalt-Itinerancy and Exchange Stiffness, by Karanikas, J.M., Sooryakumar, R., Prinz, G.A., and Jonker, B.T., *Journal of Applied Physics* **69**:6120-6125, 1991.

Thermo-Coulomb Effects in Mesoscopic Tunnel-Junctions, by Amman, M., Benjacob, E., and Cohn, J., *Zeitschrift fur Physik B - Condensed Matter* **85**:405-411, 1991.

Thermodynamic and Elastic Properties of a Many-Body Model for Simple Oxides - Comment, by Cohen, R.E. and Isaak, D.G.,

Physical Review B - Condensed Matter **44**:7106-7107, 1991.

Thermodynamic and Kinetic Aspects of GaAs Growth on Si(100), by Kaxiras, E., Alerhand, O.L., Joannopoulos, J.D., and Turner, G.W., *Superlattices and Microstructures* **8**:229-232, 1990.

Thin Film Deposition and Microelectronic and Optoelectronic Device Fabrication and Characterization in Monocrystalline α and β Silicon Carbide, by Davis, R.F., Kelner, G., Shur, M., Palmour, J.W., and Edmond, J.A., *Proceedings of the IEEE* **79**:677-701, 1991.

Transition Metal Implants in $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}$, by Gulwadi, S.M., Rao, M.V., Berry, A.K., Simons, D.S., Chi, P.H., and Dietrich, H.B., *Journal of Applied Physics* **69**:4222-4227, 1991.

The Tribological Behavior of Tin Coatings Prepared by IBAD, by Dillich, S.A., Kant, R.A., Sartwell, B.D., Sprague, J.A., and Smidt, F.A., *Journal of Tribology* **113**:214-219, 1991.

Type Conversion of Epitaxial GaAs-Layers After Heavy-Ion MeV Implantation and Annealing, by Moore, F.G., Klein, P.B., and Dietrich, H.B., *Nuclear Instruments and Methods in Physics Research Section B* **59**:1103-1105, 1991.

Uncommon Nuclear-Spin Relaxation in Fluorozirconate Glasses at Low-Temperatures, by Estalji, S., Kanert, O., Steinert, J., Jain, H., and Ngai, K.L., *Physical Review B - Condensed Matter* **43**:7481-7486, 1991.

The Valence of Copper in LaCuO_3 - An X-Ray Absorption Study, by Webb, A.W., Kim, K.H., and Bouldin, C., *Solid State Communications* **79**:507-508, 1991.

X-Ray Diffraction Analysis of Concentration and Residual Stress Gradients in Nitrogen-Implanted Niobium and Molybdenum, by Rao, S.I., He, B., Houska, C.R., and Grabowski, K., *Journal of Applied Physics* **69**:8111-8118, 1991.

X-Ray Diffuse Scattering from a Nitrogen-Implanted Niobium Film, by Rao, S.I., Houska,

C.R., Grabowski, K., Ice, G., and Sparks, C.J., *Journal of Applied Physics* **69**:8104-8110, 1991.

$\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Films on Flexible, Partially-Stabilized Zirconia Substrates with Fully Stabilized Zirconia Buffer Layers, by Harshavardhan, K.S., Rameshan, R., Ravi, T.S., Sampere, S., Inam, A., Chan, C.C., Hull, G., Rajeswari, M., Sands, T., Venkatesan, T., Reeves, M.E., Tkaczyk, J.E., and Lay, K.W., *Applied Physics Letters* **59**:1638-1640, 1991.

SPACE SCIENCE AND TECHNOLOGY

The 10 Year Radio Light Curves for SN-1979C, by Weiler, K.W., Vandyk, S.D., Panagia, N., Sramek, R.A., and Discenna, J.L., *Astrophysical Journal* **380**:161-166, 1991.

Angular Diameter Measurements of Stars, by Mozurkewich, D., Johnston, K.J., Simon, R.S., Bowers, P.F., Gaume, R., Hutter, D.J., Colavita, M.M., Shao, M., and Pan, X.P., *Astronomical Journal* **101**:2207-2219, 1991.

Attitude Tumbling Due to Flexibility in Satellite-Mounted Robots, by Longman, R.W., *Journal of the Astronautical Sciences* **38**:487-509, 1990.

The Bragg Crystal Spectrometer for Solar-A, by Culhane, J.L., Hiei, E., Doschek, G.A., Cruise, A.M., Ogawara, Y., Uchida, Y., Bentley, R.D., Brown, C.M., Lang, J., Watanabe, T., Bowles, J.A., Deslattes, R.D., Feldman, U., Fludra, A., Guttridge, P., Henins, A., Lapington, J., Magraw, J., Mariska, J.T., Payne, J., Phillips, K.J.H., Sheather, P., Slater, K., Tanaka, K., Towndrow, E., Trow, M.W., and Yamaguchi, A., *Solar Physics* **136**:89-104, 1991.

A Catalog of QSOs and Link Stars for the HST Link of the Hipparcos Reference Frame, by White, G.L., Jauncey, D.L., Reynolds, J.E., Malin, D., Argue, A.N., Russell, J.L., Johnston, K.J., Hemenway, P.D., and deVegt, C., *Proceedings Astronomical Society of Australia* **8**:368-371, 1990.

Chromospheric and Transition Region Diagnostics Using Emission-Line Intensities, by Athay, R.G. and Dere, K.P., *Astrophysical Journal* **379**:776-787, 1991.

- Correlated Radio and Optical Variability in the BL Lacertae Object 0716+714**, by Quirrenbach, A., Witzel, A., Wagner, S., Sanchezzpons, F., Krichbaum, T.P., Wegner, R., Anton, K., Erkens, U., Haehnelt, M., Zensus, J.A., and Johnston, K.J., *Astrophysical Journal* **372**:L71-L74, 1991.
- A Disrupted Radio Jet Inside the Host Galaxy of the Quasar 3C48**, by Wilkinson, P.N., Tzioumis, A.K., Benson, J.M., Walker, R.C., Simon, R.S., and Kahn, F.D., *Nature* **352**:313-315, 1991.
- The Dust Enshrouded Quasar in the Ultraluminous Galaxy Markarian-463 - Radio, Near-Infrared, and Optical Imaging**, by Mazzarella, J.M., Gaume, R.A., Soifer, B.T., Graham, J.R., Neugebauer, G., and Matthews, K., *Astronomical Journal* **102**:1241-1252, 1991.
- The Evolution of a Sheared Potential Magnetic-Field in The Solar Corona**, by Karpen, J.T., Antiochos, S.K., and Devore, C.R., *IAU Symposia 1990* **142**:309-312, 1990.
- The Far Ultraviolet Imaging Spectrograph on Spartan- 281**, by Carruthers, G.R., Heckathorn, H.M., Raymond, J.C., Dufour, R.J., Witt, A.N., and Opal, C.B., *IAU Symposia 1990* **139**:459-460, 1990.
- Fe-XII Line Ratios in Solar-Flares**, by Tayal, S.S., Henry, R.J.W., Keenan, F.P., McCann, S.M., and Widing, K.G., *Astrophysical Journal* **369**:567-569, 1991.
- Harmonic H^+ Gyrofrequency Structures in Auroral Hiss Observed by High-Altitude Auroral Sounding Rockets**, by Kintner, P.M., Scales, W., Vago, J., Yau, A., Whalen, B., Arnoldy, R., and Moore, T., *Journal of Geophysical Research* **96**:9627-9638, 1991.
- Heavy, Overpressured Jets and the Radio-Source Hercules-A**, by Meier, D.L., Sadun, A.C., and Lind, K.R., *Astrophysical Journal* **379**:141-156, 1991.
- The Helium Abundance of Neptune from Voyager Measurements**, by Conrath, B.J., Gautier, D., Lindal, G.F., Samuelson, R.E., and Shaffer, W.A., *Journal of Geophysical Research* **96**:18907-18919, 1991.
- High-Resolution Observations of the (9,8) Ammonia Maser Line in W51-IRS2**, by Wilson, T.L., Gaume, R., and Johnston, K.J., *Astronomy and Astrophysics* **251**:L7-L10, 1991.
- The High-Temperature Superconductivity Space Experiment**, by Webb, D.C. and Nisenoff, M., *Microwave Journal* **34**:85, 1991.
- Infrared K-Band Observations of the Gravitational Lens 2016+112**, by Langston, G.I., Fischer, J., and Aspin, C., *Astronomical Journal* **102**:1253-1257, 1991.
- Infrared Recombination Lines of Hydrogen from Young Objects in the Southern Galactic Plane**, by Beck, S.C., Fischer, J., and Smith, H.A., *Astrophysical Journal* **383**:336-343, 1991.
- The Internal Structure of Molecular Clouds II. The W3(OH)/W3(H₂O) Region**, by Wilson, T.L., Johnston, K.J., and Mauersberger, R., *Astronomy and Astrophysics* **251**:220-230, 1991.
- Kinematic and Dynamic Properties of an Elbow Manipulator Mounted on a Satellite**, by Lindberg, R.E., Longman, R.W., and Zedd, M.F., *Journal of the Astronautical Sciences* **38**:397-421, 1990.
- The Kinetics and Workspace of a Satellite-Mounted Robot**, by Longman, R.W., *Journal of the Astronautical Sciences* **38**:423-440, 1990.
- Limits on Compact Dark Matter from Null Results of Searches for Lensing of Quasi-Stellar Objects**, by Nemiroff, R.J., *Physical Review Letters* **66**:538-540, 1991.
- The Magnetic Network Location of Explosive Events Observed in the Solar Transition Region**, by Porter, J.G. and Dere, K.P., *Astrophysical Journal* **370**:775-778, 1991.
- A New Solar-Cycle Model Including Meridional Circulation**, by Wang, Y.M., Sheeley, N.R., and Nash, A.G., *Astrophysical Journal* **383**:431-442, 1991.
- Noise-Driven Radiative Shocks - A New Model for the Optical Quasi-Periodic Oscillations of the AM Herculis Objects**, by Wolff, M.T., Wood, K.S., and Imamura, J.N., *Astrophysical Journal* **375**:L31-L34, 1991.

The NRL SOLRAD X-Ray Detectors: A Summary of the Observations and a Comparison with the SMS GOES Detectors, by Kahler, S.W. and Kreplin, R.W., *Solar Physics* **133**:371-384, 1991.

Observation of ^7Be on the Surface of LDEF Spacecraft, by Fishman, G.J., Harmon, B.A., Gregory, J.C., Parnell, T.A., Peters, P., Phillips, G.W., King, S.E., August, R.A., Ritter, J.C., Cutchin, J.H., Haskins, P.S., McKisson, J.E., Ely, D.W., Weisenberger, A.G., Piercey, R.B., and Dybler, T., *Nature* **349**:678-680, 1991.

An Observational Program for a Unified Optical-Radio Reference Frame, by deVegt, C., Hughes, J.A., Jauncey, D., White, G., Johnston, K.J., Russell, J., and Nicholson, G., *Astrophysics and Space Science* **177**:199-202, 1991.

Observations of Scorpius-X-1 with IUE - Ultraviolet Results from a Multiwavelength Campaign, by Vrtillek, S.D., Penninx, W., Raymond, J.C., Verbunt, F., Hertz, P., Wood, K., Lewin, W.H.G., and Mitsuda, K., *Astrophysical Journal* **376**:278-288, 1991.

On the Nature of Soft Gamma-Repeater, by Norris, J.P., Hertz, P., Wood, K.S., and Kouveliotou, C., *Astrophysical Journal* **366**:240-252, 1991.

Probing Galactic Halo Dark Matter with Microlensing, by Nemiroff, R.J., *Astronomy and Astrophysics* **247**:73-76, 1991.

Relation Between the Quasi-Periodic Oscillations and the Low-Frequency Noise of GX 5-1 in the Horizontal Branch, by Mitsuda, K., Dotani, T., Yoshida, A., Vaughan, B., and Norris, J.P., *Publications of the Astronomical Society of Japan* **43**:113-130, 1991.

The Relationship Between Gas and Cirrus Dust Filaments at the Edge of the Expanding Shell in Eridanus, by Verschuur, G.L., Verter, F., Rickard, L.J., and Leisawitz, D.T., *IAU Symposia 1990* **139**:235-236, 1990.

Solar γ -Ray-Line Flares, Type-II Radio-Bursts, and Coronal Mass Ejections, by Cliver, E.W., Cane, H.V., Forrest, D.J., Koomen,

M.J., Howard, R.A., and Wright, C.S., *Astrophysical Journal* **379**:741-750, 1991.

Special Issue on Robotics in Space - Editorial, by Longman, R.W. and Lindberg, R.E., *Journal of the Astronautical Sciences* **38**:395-396, 1991.

Spectral-Line Profiles and Luminosities of Astrophysical Water Masers, by Nedoluha, G.E. and Watson, W.D., *Astrophysical Journal* **367**:L63-L67, 1991.

Submillimeter Observations from Space - A Space Station Submillimeter Facility (SSSF), by Weiler, K.W., Johnston, K.J., Bevilacqua, R.M., Schwartz, P.R., Hacket, J.P., Raab, A.R., Dennison, B.K., Cannon, W.H., Booth, R.S., Encrenaz, P.J., Vanardenne, A., and Welch, W.J., *Astrophysics and Space Science* **175**:311-333, 1991.

An Ultraviolet Spectral Atlas of a Sunspot and an Active Region 1190-1730Å, by Brekke, P.A., Kjeldsethmoe, O., Bartoe, J.D., and Brueckner, G.E., *Astrophysical Journal Supplement Series* **75**:1337-1366, 1991.

Velocity-Gradients in the Chromosphere-Corona Transition Region, by Athay, R.G. and Dere, K.P., *Astrophysical Journal* **381**:323, 1991.

VLA and VLBI Angular Broadening Measurements - The Distribution of Interstellar Scattering at Low Galactic Latitudes, by Fey, A.L., Spangler, S.R., and Cordes, J.M., *Astrophysical Journal* **372**:132-160, 1991.

STRUCTURE RESEARCH

Chiral Prodyes: Synthesis and Full Characterization of (S)-1- Phenylethylamides of the Optically- Active O- Methyl-dihydrofluoresceins, by Brzostowska, M., Brossi, A., and Flippen-Anderson, J.L., *Heterocycles* **32**:1969-1972, 1991.

Crystal-Structure and Molecular-Structure of Mefloquine Methylsulfonate Monohydrate - Implications for a Malaria Receptor, by Karle, I.L. and Karle, J.M., *Antimicrobial Agents and Chemotherapy* **35**:2238-2245, 1991.

Facile Synthesis and Nitration of Cis-Syn-Cis-2,6- Dioxodecahydro-1H,5H-Diimidazo (4,5-B:4',5'-E)pyrazine, by Vedachalam, M., Ramakrishnan, V.T., Boyer, J.H., Dagley, I.J., Nelson, K.A., Adolph, H.G., Gilardi, R.D., George, C.F., and Flippen-Anderson, J.L., *Journal of Organic Chemistry* **56**:3413-3419, 1991.

Five 8,11-Substituted Pentacyclo (5.4.0.0^{2,6}.0^{3,10}.0^{5,9}) undecanes, by Flippen-Anderson, J.L., George, C.F., Gilardi, R.D., Zajac, W.W., Walters, T.R., Marchand, A., Dave, P.R., and Arney, B.E., *Acta Crystallographica Section C* **47**:813-817, 1991.

Oxoaporphine Alkaloids - Conversion of Lysicamine into Liriodendronine and Its 2-O-Methyl Ether, and Antifungal Activity, by Pabuccuoglu, V., Rozwadowska, M.D., Bossi, A., Clark, A., Hufford, C.D., George, C.F., and Flippen-Anderson, J.L., *Archiv Der Pharmazie* **324**:29-33, 1991.

Reactions of Tris(bis(trimethylsilyl)Amino) aluminum with Ammonia and Pyrolysis Studies, by George, C.F., Flippen-Anderson, J.L., Gilardi, R.D., Paciorek, K.J.L., Nakahara, J.H., Hoferkamp, L.A., and Schmidt, W.R., *Chemistry of Materials* **3**:82-87, 1991.

Some Additional Features of One-Wavelength Anomalous Dispersion, by Karle, J., *Acta Crystallographica Section A* **47**:537-543, 1991.

Structure of the Antimalarial (±)-Mefloquine Hydrochloride, by Karle, I.L. and Karle, J.M., *Acta Crystallographica Section C* **47**:2391-2395, 1991.

Structure of the Radiation Protection Agent S-2-(5- Aminopentylamino) Ethylphosphorothioic Acid (WR 2823) Dihydrate, by Karle, I.L. and Karle, J.M., *Acta Crystallographica Section C* **47**:1242-1245, 1991.

Synthesis and Properties of 1,2-Difluorodinitroethylene, by Baum, K., Archibald, T.G., Tzeng, D., Gilardi, R.D., Flippen-Anderson, J.L., and George, C.F., *Journal of Organic Chemistry* **56**:537-539, 1991.

1991 IN-HOUSE PUBLICATIONS

1991 Fact Book, NRL PUB 180-4830, Naval Research Laboratory, May, 1991, pp. 142.

1991 NRL Review, NRL PUB 181-4830, Naval Research Laboratory, May, 1991, pp. 260. Available from NTIS as ADA238665.

2-D Fluid Modeling of Kinetic Energy Generation, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 106-112. Available from NTIS as ADA239780.

Advanced Concepts Theory Annual Report 1990, by Whitney, K., NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 148. Available from NTIS as ADA239780.

Analysis of FIN Line Feasibility for W-Band Attenuator Applications, by Molnar, J.A., NRL-MR-6843, Naval Research Laboratory, June 11, 1991, pp. 68. Available from NTIS as ADA237271.

Analysis of the Deflection System for a Magnetic-Field-Immersed Magnicon Amplifier; Microfiche Images of the Engineering Drawings of the Modified Betatron Accelerator, by Gold, S.H., Manheimer, W.M., Sprangle, P., Hafizi, B., and Seo, S.H., NRL-MR-6793; NRL-MR-6793-SUP-1, Naval Research Laboratory, November 5, 1991, pp. 28. Available from NTIS as ADA242433.

Analytic Methods of Image Registration: Displacement Estimation and Resampling, by McHugh, M.J. and Schaum, A., NRL-9298, Naval Research Laboratory, February 28, 1991, pp. 37. Available from NTIS as ADA233385.

Analyzing Experimental Data for Load Short Circuits and Anomalous Heating, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 28-59. Available from NTIS as ADA239780.

ANDVT Rate Conversion Algorithm (From 2400 b/s to 1200 b/s), by Kang, G.S. and Fransen, L.J., NRL-9357, Naval Research Laboratory, December 27, 1991, pp. 29. Available from NTIS as ADA244340.

Anomalous Plasma Heating and Runaway Electron Production, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 86-105. Available from NTIS as ADA239780.

Artificial Intelligence Technical Paper Abstracts 1990, by Wiley, C.J., NRL-MR-6897, Naval Research Laboratory, Navy Center for Applied Research in Artificial Intelligence (NCARAI), October 5, 1991, pp. 27. Available from NTIS as ADA241403.

An Automatic, Computer-Operated Laboratory Precalibration System for Navy Sonar Standard Transducers, by Ivey, L.E. and Tims, J.A., NRL-MR-6903, Naval Research Laboratory - Underwater Sound Reference Div., December 15, 1991, pp. 20. Available from NTIS as ADA244700.

Average Atom Modeling of L- and M-Shell Ionization Dynamics, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 78-85. Available from NTIS as ADA239780.

Axial Flow and Stability in Screw Pinch PRS Loads, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 113-121. Available from NTIS as ADA239780.

Background Simulation and Filter Design Using Iterated Function Systems, by Schartz, I.B. and Reuter, L., NRL-MR-6784, Naval Research Laboratory, February 19, 1991, pp. 52. Available from NTIS as ADA232632.

BarT Manual Version 3.0, by Hota, N., Ramsey, C.L., Chang, L.W., and Booker, L.B.,

NRL-MR-6778, Naval Research Laboratory, February 14, 1991, pp. 48. Available from NTIS as ADA234528.

Beam Trapping in the NRL Modified Betatron Accelerator, by Kapetanakis, C.A., Dialetis, D., Marsh, S.J., Len, L.K., and Smith, T., NRL-MR-6808, Naval Research Laboratory, May 15, 1991, pp. 21. Available from NTIS as ADA237269.

A Boundary Scattering Strength Extraction Algorithm for the Analysis of Long-Range Reverberation Data, by Pitre, R., Fromm, D., and Franchi, E.R., NRL-9142, Naval Research Laboratory, March 29, 1991, pp. 14. Available from NTIS as ADA233721.

Central Computing Facility User's Guide, by Saenger, R., NRL PUB 184-5842, Naval Research Laboratory, February, 1991.

The Charge-Exchange Neutral Problem and the Code NEUTRAL, by Les, J.M. and Terry, R.E., NRL-MR-6779, Naval Research Laboratory, June 26, 1991, pp. 68. Available from NTIS as ADA237889.

Chemical Reduction of Intermodulation Interference Caused by Metal-Oxide-Metal Junctions Aboard Ship, by Hynes, R., Carhart, H.W., and Cooper, J.C., NRL-FR-9344, Naval Research Laboratory, July 31, 1991, pp. 32. Available from NTIS as ADA239530.

CLESIM: A Simulation Model of the Conventional Link-11 Roll-Call Network, by Kallgren, D.G. and Pam, L.N., NRL-MR-6868, Naval Research Laboratory, August 10, 1991, pp. 31. Available from NTIS as ADA239577.

Clutter-Doppler Spectral Analysis for a Space-Based Radar, by Mokole, E.L., NRL-9327, Naval Research Laboratory, May 10, 1991, pp. 43. Available from NTIS as ADA236644.

A Complex Systems Approach to Metallic Fracture Surface Characterization, by Kirby, G.C. and Matic, P., NRL-MR-6429, Naval Research Laboratory, February 6, 1991, pp. 52. Available from NTIS as ADA232546.

A Computational Study of HY and HSLA Steel Performance in a Bulkhead Test Panel

Geometry, by Degiorgi, V.G. and Matic, P., NRL-MR-7634, Naval Research Laboratory, February 6, 1991, pp. 34. Available from NTIS as ADA235538.

Contributions to Radar Tracking Errors for a Two-Point Target Caused by Geometric Approximations, by Mokole, E.L., NRL-9349, Naval Research Laboratory, September 19, 1991, pp. 28. Available from NTIS as ADA241635.

Convergence Performance of Adaptive Detectors, Part I, by Gerlach, K.R., NRL-9311, Naval Research Laboratory, July 30, 1991, pp. 24. Available from NTIS as ADA239531.

Convergence Performance of Adaptive Detectors, Part II, by Gerlach, K.R., NRL-9337, Naval Research Laboratory, August 7, 1991, pp. 30. Available from NTIS as ADA239532.

Density Channel Tracking Studies on Pulserad, by Murphy, D.P., Pechacek, R.E., Meger, R.A., and Taggart, D.P., NRL-MR-6770, Naval Research Laboratory, March 2, 1991, pp. 35. Available from NTIS as ADA232649.

Depressed Collector Experiments on a Quasioptical Gyrotron, by Hargreaves, T.A., Fliflet, A.W., Fischer, R.P., and Barsanti, M.L., NRL-MR-6816, Naval Research Laboratory, April 17, 1991, pp. 16. Available from NTIS as ADA234559.

Design of an Electron Gun for a 280 GHz Induced-Resonance-Electron-Cyclotron (IREC) Master Experiment, by McCowan, R.B., Fliflet, A.W., and Pendleton, R.A., NRL-MR-6785, Naval Research Laboratory, February 16, 1991, pp. 21. Available from NTIS as ADA276400.

Device Upset Predictions for the Chemical Release and Radiation Effects Satellite (CRRES): A Summary, by Langworthy, J.B., NRL-MR-6913, Naval Research Laboratory, November 14, 1991, pp. 15. Available from NTIS as ADA242704.

Digital Beamforming and Pulse Compression in an Adaptive Array Radar System, by Lee, F.W. and Burroughs, M., NRL-MR-6788, Naval Research Laboratory, February 25, 1991, pp. 37. Available from NTIS as ADA232713.

- Dilatometry on Thermoset Resins**, by Snow, A.W. and Armistead, J.P., NRL-MR-6848, Naval Research Laboratory, July 29, 1991, pp. 25. Available from NTIS as ADA239276.
- Direct and Large-Eddy Simulations of Three-Dimensional Compressible Navier-Stokes Turbulence**, by Dahlburg, R.B., Dahlburg, J.P., and Zang, T.A., NRL-MR-6799, Naval Research Laboratory, April 2, 1991, pp. 57. Available from NTIS as ADA233717.
- Discharge System Tests of Halon 1301 Test Gas Simulants**, by Leonard, J.T., Carhart, H.W., Dinunno, P.J., Forssell, E.W., and Starchville, M.D., NRL-MR-6898, Naval Research Laboratory, September 19, 1991, pp. 115. Available from NTIS as ADA240679.
- Effect of Ripple Load on Stress-Corrosion Cracking in Structural Steels**, by Pao, P.S., Bayles, R.A., and Yoder, G.R., NRL PUB 190-6320, Naval Research Laboratory, February, 1991.
- Effective Viscosity in the Simulation of Spatially Evolving Shear Flows with Monotonic FCT Models**, by Grinstein, F.F. and Guirguis, R.H., NRL-MR-6926, Naval Research Laboratory, December 13, 1991, pp. 38. Available from NTIS as ADA243709.
- The Effects of Field Errors on Low-Gain Free Electron Lasers**, by Esarey, E., Tang, C.M., and Marable, W., NRL-MR-6911, Naval Research Laboratory, December 18, 1991, pp. 39. Available from NTIS as ADA243710.
- Electromagnetic Instability of an Intense Beam in a Quadrupole Focusing System**, by Tang, C.M., Swyden, T., and Krall, J., NRL-MR-6879, Naval Research Laboratory, October 4, 1991, pp. 7. Available from NTIS as ADA241632.
- Electrostatic Turbulence in Z-Pinch Corona**, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 122-162. Available from NTIS as ADA239780.
- Evidence for MeV Particle Emission from Ti Charged with Low Energy Deuterium Ions**, by Chambers, G.P., Hubler, G.K., and Grabowski, K.S., NRL-MR-6927, Naval Research Laboratory, December 18, 1991, pp. 34. Available from NTIS as ADA243718.
- Evolution of a Finite Pulse of Radiation in a High-Power Free-Electron Laser**, by Ting, A.C., Sprangle, P., Tang, C.M., and Hafizi, B., NRL-MR-6844, Naval Research Laboratory, June 20, 1991, pp. 52. Available from NTIS as ADA237427.
- Exact Result for the Grazing Angle of Specular Reflection from a sphere**, by Miller, A.R. and Vegh, E., NRL-MR-6867, Naval Research Laboratory, August 9, 1991, pp. 17. Available from NTIS as ADA239578.
- Flexural Plate Wave Devices for Chemical Analysis**, by Grate, J.W., Wenzel, S.W., and White, R.M., NRL-MR-6815, Naval Research Laboratory, April 16, 1991, pp. 51. Available from NTIS as ADA234129.
- Frequency Upshifting of Laser Pulses by Ionization Fronts**, by Erasey, E., Joyce, G., and Sprangle, P., NRL-MR-6737, Naval Research Laboratory, March 14, 1991, pp. 13. Available from NTIS as ADA234354.
- Frequency-Independent and Frequency-Dependent Polymer Transitions on Flexural Plate Wave Devices and Their Effects on Vapor Sensor Response Mechanisms**, by Grate, J.W., White, R.M., and Wenzel, S.W., NRL-MR-6859, Naval Research Laboratory, August 10, 1991, pp. 45. Available from NTIS as ADA239243.
- Further Investigations Using the NEUTRAL Code**, by Les, J.M. and Terry, R.E., NRL-MR-6783, Naval Research Laboratory, June 26, 1991, pp. 25. Available from NTIS as ADA237791.
- Further Studies on Beam Breakup Growth Reduction by Cavity Cross-Couplings in Recirculating Accelerators: Effects of Long Pulse Length and Multiturn Recirculation**, by Lau, Y.Y. and Colombant, D., NRL-MR-6875, Naval Research Laboratory, September 26, 1991, pp. 37. Available from NTIS as ADA241402.
- A Graphical User Interface for Shipboard Damage Control**, by Tate, D.L., NRL-9355, Naval Research Laboratory, August 26, 1991, pp. 15. Available from NTIS as ADA241504.

A Hierarchical Artificial Intelligence Maintenance Advisor, by Molnar, J.A. and Moss, G.J., NRL-9335, Naval Research Laboratory, July 8, 1991, pp. 32. Available from NTIS as ADA238898.

High Pressure Turbine Blade Life Extension, by Smith, H.H. and Michel, D.J., NRL-MR-6861, Naval Research Laboratory, August 28, 1991, pp. 48. Available from NTIS as ADA240654.

High-Quality 800-b/s Voice Processing Algorithm, by Kang, G.S. and Fransen, L.J., NRL-9301, Naval Research Laboratory, February 25, 1991, pp. 42. Available from NTIS as ADA232352.

Hydrodynamic Target Response to an Induced Spatial Incoherence-Smoothed Laser Beam, by Emery, M.H., Gardner, J.H., Lehmberg, R.H., and Obenschain, S.P., NRL-MR-6853, Naval Research Laboratory, July 23, 1991, pp. 44. Available from NTIS as ADA239306.

An Implementation of the Singular Value Decomposition on the Connection Machine CM-2, by Chu, N.A., NRL-9318, Naval Research Laboratory, April 11, 1991, pp. 40. Available from NTIS as ADA234124.

Impulse Arrays, by Temes, C.L., NRL-9303, Naval Research Laboratory, May 3, 1991, pp. 33. Available from NTIS as ADA235799.

Infrared/Electro-Optical Simulation and Measurement Section, NRL/PU/182-5757, Naval Research Laboratory, February, 1991, pp. 12.

Integration Losses and Clutter-Doppler Spread for a Space Based Radar Caused by Ionospheric Scintillation During a Solar Maximum, by Mokole, E.L., NRL-9343, Naval Research Laboratory, July 31, 1991, pp. 16. Available from NTIS as ADA239534.

Introducing The Chesapeake Bay Detachment, A Unique NRL Resource for Scientific Research, NRL PUB 208-1270, Naval Research Laboratory, October, 1991, pp. 1.

LACE (Low-Power Atmospheric Compensation Experiment) Satellite, NRL/PU

/199-8105, Naval Research Laboratory, October, 1991, pp. 25.

A Laser Test Set for the Low-Power Atmospheric Compensation Experiment Satellite, by Welch, J.A., Trusty, G.L., Light, B., and Cosden, T.H., NRL-9360, Naval Research Laboratory, October 24, 1991, pp. 52. Available from NTIS as ADA242703.

Linear Theory of a Quasioptical Gyroklystron with Nonuniform Magnetic Field, by Fischer, R.P., Manheimer, W.M., Hargreaves, T.A., and Fliflet, A.W., NRL-MR-6881, Naval Research Laboratory, September 3, 1991, pp. 26. Available from NTIS as ADA240264.

Long Term Training, NRL PUB 205-3840, Naval Research Laboratory, November, 1991, pp. 12.

LSD 36 Well Deck Fire Protection, by Leonard, J.T., Darwin, R.L., Back, G.G., Beller, R.C., Burns, R.E., and Ofuellette, R., NRL-MR-6821, Naval Research Laboratory, May 30, 1991, pp. 29. Available from NTIS as ADA237426.

Machine Learning Systems: Part I - Concept Learning from Examples with AQ15 and Related Systems, by Gordon, D.F. and Spears, W.M., NRL-9330, Naval Research Laboratory, September 30, 1991, pp. 29. Available from NTIS as ADA242472.

Materials Science and Engineering 1989 Publications, NRL PUBL 195-6000, Naval Research Laboratory, March 29, 1991, pp. 65. Available from NTIS as ADA234087.

Materials Science and Engineering Research, NRL-PUB-183-6000, Naval Research Laboratory, November, 1991, pp. 130.

Materials Science & Technology Division - Code 6300, NRL PUB 135-6300, Naval Research Laboratory, January, 1991, pp. 12.

Modeling Modal Transient Behavior of GaAs Laser Diodes with Temperature Dependent Rate Equations and Comparison to Experimental Data, by Lippincott, W.L. and Collins, W.C., NRL-MR-6901; SPAWAR-004-4/014-90, Naval Research Laboratory, December

26, 1991, pp. 99. Available from NTIS as ADA244097.

Modeling of Dynamic Bipolar Plasma Sheaths, by Grossman, J.M., Ottinger, P.F., and Swanekamp, S.B., NRL-MR-6894, Naval Research Laboratory, November 6, 1991, pp. 52. Available from NTIS as ADA240928.

Modelling the Response of Thick Composite Materials Due to Axisymmetric Shock Loading, by Nemes, J.A. and Randles, P.W., NRL-MR-6856, Naval Research Laboratory, August 5, 1991, pp. 88. Available from NTIS as ADA239531.

Modification of Programs CHIEF and CID to Compute Sound Radiation From an Arbitrary Body With Mixed Boundary Conditions, by Siders, C.M., Thompson, W., and Dubus, B., NRL-MR-6813, Naval Research Laboratory, June 1, 1991, pp. 67. Available from NTIS as ADA237502.

Multimode Analysis of Bragg Reflectors for Cyclotron Maser Applications, by Fliflet, A.W., Gold, S.H., and McCowan, R.B., NRL-MR-6777, Naval Research Laboratory, February 16, 1991, pp. 19. Available from NTIS as ADA276509.

Multimode Simulation of High Frequency Gyrotrons, by Gold, S.H. and Fliflet, A.W., NRL-MR-6872, Naval Research Laboratory, September 5, 1991, pp. 32. Available from NTIS as ADA240803.

A New Asymptotic Theory for the Periodically Forced Laser, by Schwartz, I.B. and Erneux, T., NRL-MR-6787, Naval Research Laboratory, February 19, 1991, pp. 15. Available from NTIS as ADA232633.

A New Theory for Image Formation with Quasi-homogeneous Sources and Its Application to the Detection and Location of ICBM Launches, by Carter, W.H., NRL-9336, Naval Research Laboratory, September 17, 1991, pp. 28. Available from NTIS as ADA241633.

NRL Connection Machine Fortran Library, by Young, M.A., NRL-MR-6807, Naval Research Laboratory, April 16, 1991, pp. 198. Available from NTIS as ADA234121.

Numerical Simulations of Detonation Transmission, by Oran, E.S., Jones, D.A., and Sichel, M., NRL-MR-6884, Naval Research Laboratory, September 3, 1991, pp. 50. Available from NTIS as ADA240560.

On the Possibility of High Power Gyrotrons for Super Range Resolution Radar and Atmospheric Sensing, by Manheimer, W.M., NRL-MR-6830, Naval Research Laboratory, December 20, 1991, pp. 45. Available from NTIS as ADA244041.

An Overview of the Common Fluid Models Used in Fluid-Structure Interactions, by Flippen, L.D., NRL-MR-6841, Naval Research Laboratory, August 5, 1991, pp. 24. Available from NTIS as ADA239277.

Patents - A Guide for Employees, NRL PUB 173-3008, Naval Research Laboratory, January, 1991, pp. 14.

Performance of an Angle-of-Arrival Estimator in the Presence of a Mainbeam Interference Source, by Lin, F. and Kretschmer, F.F., NRL-9345, Naval Research Laboratory, August 12, 1991, pp. 17. Available from NTIS as ADA239629.

Plasma Physics Division, NRL PUB 176-4700, Naval Research Laboratory, January, 1991, pp. 1.

Plasma Reflectors for Electronic Beam Steering in Radar Systems, by Manheimer, W.M., NRL-MR-6809, Naval Research Laboratory, April 17, 1991, pp. 24. Available from NTIS as ADA234560.

Plasticity in Shocked Single Crystals Viewed by Pulsed X-Ray Diffraction, by Whitlock, R.R. and Wark, J.S., NRL-MR-6874, Naval Research Laboratory, October 5, 1991, pp. 8. Available from NTIS as ADA241404.

Post-Flashover Fires in Simulated Shipboard Compartments: Phase I - Small Scale Studies, by Leonard, J.T., Fulper, C.R., Darwin, R.L., Back, G.G., Scheffey, J.L., Willard, R.L., DiNunno, P.J., Steel, J.S., Ouellette, R.J., and Beyler, C.L., NRL-MR-6886, Naval Research Laboratory, September 3, 1991, pp. 169. Available from NTIS as ADA240713.

Post-Flashover Fires in Simulated Shipboard Compartments: Phase II - Cooling of Fire Compartment Boundaries, by Leonard, J.T., Fulper, C.R., Darwin, R.L., Back, G.G., Ouellette, R.J., Scheffey, J.L., and Willard, R.L., NRL-MR-6896, Naval Research Laboratory, Navy Technology Center for Safety and Survivability, September 19, 1991, pp. 36. Available from NTIS as ADA241241.

The Predominant Role of Sorbent Phase Swelling or Modulus Changes in Determining the Responses of Polymer-Coated Surface Acoustic Wave Vapor Sensors, by Grate, J.W., Klusty, M., McGill, R.A., Abraham, M.H., Whiting, G., and Andonian-Haftvan, J., NRL-MR-6860, Naval Research Laboratory, August 10, 1991, pp. 54. Available from NTIS as ADA239286.

Preparing a Sublanguage Grammar, by Perzanowski, D. and Marsh, E., NRL-9351, Naval Research Laboratory, October 31, 1991, pp. 30. Available from NTIS as ADA242464.

Principles of Interpolator Design and Evaluation, by Schaum, A.P., NRL-9356, Naval Research Laboratory, November 15, 1991, pp. 45. Available from NTIS as ADA242822.

Probabilistic Interference in Restrictive Systems, by Gray, J.W., NRL-9315, Naval Research Laboratory, June 20, 1991, pp. 35. Available from NTIS as ADA238924.

A Probabilistic Model for Link-11 Networking Operation, by Schlorff, J.S., NRL-MR-6776, Naval Research Laboratory, January 25, 1991, pp. 34. Available from NTIS as ADA231801.

The Probability of Multiple Correct Packet Receptions in a Multireceiver Frequency-Hopped Spread-Spectrum System, by Geraniotis, E., NRL-MR-6882, Naval Research Laboratory, September 3, 1991, pp. 50. Available from NTIS as ADA240655.

The Problems of Routing and Scheduling in Multihop Radio Networks - A Hopfield Neural Network Approach, by Wieselthier, J.E., Barnhart, C.M., Ephremides, A., and Ephremides, A., NRL-9366; NRL-FR-5521-91-9366, Naval Research Laboratory, December 31,

1991, pp. 93. Available from NTIS as ADA247431.

Pulse Compression Degradation Due to Open Loop Adaptive Cancellation, Part I, by Gerlach, K.R., NRL-9107, Naval Research Laboratory, July 31, 1991, pp. 31. Available from NTIS as ADA240552.

Pulse Compression Degradation Due to Open Loop Adaptive Cancellation, Part II, by Gerlach, K.R., NRL-9309, Naval Research Laboratory, August 23, 1991, pp. 16. Available from NTIS as ADA241288.

Pulse Compression Degradation Due to Open Loop Adaptive Cancellation, Part III, by Gerlach, K.R., NRL-9310, Naval Research Laboratory, August 23, 1991, pp. 28. Available from NTIS as ADA240553.

A Pulsed Nitrogen Laser for Optical Plasma Diagnostics, by Sethian, J.D., and DeSilva, A.W., NRL-MR-6893, Naval Research Laboratory, October 1, 1991, pp. 20. Available from NTIS as ADA242122.

Quantum Extension of Child-Langmuir Law, by Lau, Y.Y., Colombant, D.G., Chernin, D., and Ho, P.T., NRL-MR-6782, Naval Research Laboratory, February 18, 1991, pp. 14. Available from NTIS as ADA232407.

Radar Pulse Compression and Electromagnetic Interference (EMI), by Lin, C., NRL-9326, Naval Research Laboratory, May 30, 1991, pp. 27. Available from NTIS as ADA236820.

Recent Advances in Free Electron Laser Theory, by Tang, C.M., NRL-MR-6831, Naval Research Laboratory, June 11, 1991, pp. 22. Available from NTIS as ADA236826.

Reception of Signals from a Distant Transmitting Half-Wave Dipole Excited by a Single-Cycle Sinusoid, by Samaddar, S.N., NRL-MR-6771, Naval Research Laboratory, February 18, 1991, pp. 24. Available from NTIS as ADA271316.

Reduction of $3\omega_0/2$ Emission from Laser-Produced Plasmas with Broad Bandwidth Induced Spatial Incoherence at $0.53 \mu\text{m}$, by

Obenschain, S.P., Peyser, T.A., Manka, C.K., and Kearney, K.J., NRL-MR-6798, Naval Research Laboratory, May 24, 1991, pp. 28. Available from NTIS as ADA235798.

Results on Cancellor Convergence in Nonstationary Noise, by Gerlach, K.R., NRL-9312, Naval Research Laboratory, May 14, 1991, pp. 30. Available from NTIS as ADA236195.

A Review of Experimental Observations and Remaining Questions Concerning Formation, Persistence and Disappearance of Sea Slicks, by Barger, W.R., NRL-9313, Naval Research Laboratory, May 6, 1991, pp. 50. Available from NTIS as ADA235802.

Scaling Kilovolt X-Ray Emission in Z-Pinches, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 1-27. Available from NTIS as ADA239780.

Scaling L-Shell Ionization Dynamics, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 72-77. Available from NTIS as ADA239780.

Scheduling Link Activation in Multihop Radio Networks by Means of Hopfield Neural Network Techniques, by Barnhart, C.M., Wieselthier, J.E., Ephremides, A., and Ephremides, A., NRL-MR-6885, Naval Research Laboratory, September 3, 1991, pp. 95. Available from NTIS as ADA241242.

Science and Engineering Apprentice Program, SEAP Wants You to be a Mentor, NRL PUB 198-3840, Naval Research Laboratory, September, 1991, pp. 1.

A Simple Technique for Displaying WDB-II Digital Cartographic Imagery in KEE, by Kilgore, J.A., NRL-MR-6797, Naval Research Laboratory, May 7, 1991, pp. 34. Available from NTIS as ADA235800.

Some Aspects of Nonneutral Plasma Physics, by Manheimer, W.M., NRL-MR-6912, Naval Research Laboratory, December 18, 1991, pp. 17. Available from NTIS as ADA243711.

Stress Field Variations During Dynamic Loading, by Degiorgi, V.G., NRL-MR-6895, Naval

Research Laboratory, October 18, 1991, pp. 24. Available from NTIS as ADA242121.

Studies of Synchrotron Radiation Emission from the NRL Modified Betatron Accelerator, by Smith, T.J., Kapetanakis, C.A., and Golden, J., NRL-MR-6774, Naval Research Laboratory, January 24, 1991, pp. 31. Available from NTIS as ADA231346.

A Study of Channel-Access Schemes for Integrated Voice/Data Networks, by Wieselthier, J.E., Ephremides, A., and Ephremides, A., NRL-9359, Naval Research Laboratory, November 29, 1991, pp. 45. Available from NTIS as ADA243584.

Surface Acoustic Wave Vapor Sensors Based on Resonator Devices, by Grate, J.W. and Klusty, M., NRL-MR-6829, Naval Research Laboratory, May 23, 1991, pp. 44. Available from NTIS as ADA235797.

A Survey of Scattering, Attenuation, and Size Spectra Studies of Bubble Layers and Plumes Beneath the Air-Sea Interface, by Powell, E., NRL-MR-6823, Naval Research Laboratory, August 30, 1991, pp. 64. Available from NTIS as ADA240262.

SUSIM - A Program to Study the Sun's Interaction with the Upper Earth Atmosphere, by Brueckner, G., Lean, J., and VanHoosier, M., NRL PUB 207-4160, Naval Research Laboratory, August, 1991, pp. 17.

Technical Information Division, NRL PUB 196-5500, Naval Research Laboratory, July, 1991, pp. 1.

Technology Transfer Through Cooperative Research and Development Agreements (CRDAs), NRL PUB 185-1003, Naval Research Laboratory, January, 1991, pp. 1.

Testing the One-Port Random Access Memory (1PRAM) Module of TRW's CPUAX Signal Processing Superchip, by Tavik, G.C., NRL-MR-6775, Naval Research Laboratory, April 16, 1991, pp. 51. Available from NTIS as ADA234127.

Theoretical Investigation of the Effects of Short Circuits and Anomalous Heating on

Al Array Yields, by Whitney, K., in NRL-MR-6870, Naval Research Laboratory, August 16, 1991, pp. 60-71. Available from NTIS as ADA239780.

Theory and Application of the Wavelet Transform to Signal Processing, by Drumheller, D.M., NRL-9316, Naval Research Laboratory, July 31, 1991, pp. 50. Available from NTIS as ADA239533.

Theory of Electron Beam Tracking in Reduced-Density Channels, by Fernsler, R.F., Slinker, S.P., and Hubbard, R.F., NRL-MR-6806, Naval Research Laboratory, April 2, 1991, pp. 52. Available from NTIS as ADA233387.

Three Dimensional Variable Constraint Effects in Fracture Initiation, by Degiorgi, V.G., NRL-MR-6767, Naval Research Laboratory, March 25, 1991, pp. 56. Available from NTIS as ADA233386.

Tilted Resonator Experiments on a Quasioptical Gyrotron, by Hargreaves, T.A., Fliflet, A.W., Fischer, R.P., Manheimer, W.M., Barsanti, M.L., Levush, B., and Antonsen, T.M., NRL-MR-6887, Naval Research Laboratory, September 16, 1991, pp. 28. Available from NTIS as ADA240680.

Transverse Klystron, by Sprangle, P. and Seo, Y., NRL-MR-6756, Naval Research Laboratory, January 31, 1991, pp. 35. Available from NTIS as ADA231586.

Tripod Operators for the Interpretation of Range Images, by Pipitone, F.J., NRL-MR-6780, Naval Research Laboratory, February 19, 1991, pp. 32. Available from NTIS as ADA232631.

Unlimited Vocabulary Synthesis Using Line Spectrum Pairs, by Everett, S.S., NRL-9340, Naval Research Laboratory, September 30, 1991, pp. 18. Available from NTIS as ADA241634.

Use of a Zone Model for Validation of a Horizontal Ceiling/Floor Vent Algorithm, by Bailey, J.L., Tatem, P.A., and Williams, F.W., NRL-MR-6811, Naval Research Laboratory, April 26, 1991, pp. 43. Available from NTIS as ADA234553.

User's Guide for Samuel, Version 1.3, by Grefenstette, J.J. and Cobb, H.G., NRL-MR-6820, Naval Research Laboratory, May 6, 1991, pp. 96. Available from NTIS as ADA235611.

User's Guide to the (ncar ai) Artificial Intelligence Technical Library, NRL-MR-6842, Naval Research Laboratory, June 12, 1991, pp. 13. Available from NTIS as ADA237270.

Video Companion to the NRL 1991 Review; Introduction to NRL; Introduction to NRL's Research; Adaptive Radar; Synthesis and Structures of New Energetic Materials; Synchrotron X-Radiation Research; Underwater Acoustic Imaging; Drug Detection by Using an Antibody-Based Sensor; The Flow Immunosensor; Corrosion and Preventing It - The Navy's Water-Cooled VLF Transmitters: A Vital Submarine Link; Coherent Information Management for Coordinated Simulation Assessment, by Donegan, J.J., Coffey, T., Lee, F.W., Burroughs, M.E., Gilardi, R.D., George, C.F., Kabler, M.N., Nagel, D.J., Skelton, E.F., Rosenblum, J., Kamgar-Parsi, B., Belcher, E., Wemhoff, G.W., Kusterbeck, A.W., Ligler, F.S., Ervin, A.M., Hardy, K.A.S., Cooper, J.C., and Dunham, C.E., NRL PUB 181-4830, Naval Research Laboratory, May, 1991. Available from NTIS as ADM000061.

Vlasov Simulations of Very-Large-Amplitude Wave Generation in the Plasma Wakefield Accelerator, by Krall, J., Joyce, G., and Esarey, E., NRL-MR-6772, Naval Research Laboratory, June 17, 1991, pp. 32. Available from NTIS as ADA237428.

Water Solubility of BIS (2-Ethylhexyl) Hydrogen Phosphite, by Pellenbarg, R.E. and Cephas, K., NRL-MR-6795, Naval Research Laboratory, April 17, 1991, pp. 12. Available from NTIS as ADA234561.

X-ray Laser Program Final Report for FY 90, NRL-MR-6817, Naval Research Laboratory, April 18, 1991, pp. 153. Available from NTIS as ADA234390.

1991 PATENTS

All-Optical Fiber Faraday Rotation Current Sensor with Heterodyne Detection Technique, by Kersey, A.D., U.S. Patent 5,063,290; Serial No. 07/582,274; Navy Case No. 72,895, November 5, 1991.

Amino Phenyl Containing Curing Agent for High Performance Phthalonitrile Resin, by Keller, T.M., U.S. Patent 5,003,039; Navy Case No. 70,430; Serial No. 07/273,443, March 26, 1991.

Bi-Directional Optical Transmission System for RF Electrical Energy, by Bryant, P.T., Weller, J.F., and Goldberg, L., U.S. Patent 5,066,148; Serial No. 07/560,702; Navy Case No. 70,228, November 19, 1991.

Bislactone Curing Agents for Epoxy Resins and Polymers Obtained Therefrom, by Sikes, A.M. and Brady, R.F., U.S. Patent 5,057,590; Serial No. 500,839; Navy Case No. 72,485, October 15, 1991.

Coating and Composition Containing Lipid Microstructure Toxin Dispensers, by Price, R.R. and Brady, R.F., U.S. Patent 5,049,382; Serial No. 343,762; Navy Case No. 71,593, September 17, 1991.

Compact Optical RF Spectrum Analyzer, by Lee, J.N. and Verber, C.M., U.S. Patent 5,027,055; Serial No. 07/463,063; Navy Case No. 68,100, June 25, 1991.

Differential Polarimetric Fiber Optic Sensor, by Kersey, A.D., U.S. Patent 5,054,922; Serial No. 465,677; Navy Case No. 71,469, October 8, 1991.

Efficient Dynamic Phase Front Modulation System for Free-Space Optical Communications, by Gilbreath, G.C. and Davidson, F.M., U.S. Patent 4,987,607; Navy Case No. 70,565; Serial No. 07/242,678, January 22, 1991.

Energy Beam Treatment for Improved Adhesion of Coatings to Surfaces, by Singer, I.L., U.S. Patent 5,045,345; Serial No. 07/429,959; Navy Case No. 71,027, September 3, 1991.

Environmentally Stable Metal Powders, by Anderson, I.E. and Ayers, J.D., U.S. Patent 5,073,409; Serial No. 07/545,005; Navy Case No. 71,608, December 17, 1991.

Field Emitter Array Comparator, by Gray, H.F., U.S. Patent 5,030,895; Serial No. 07/574,858; Navy Case No. 70,559, July 9, 1991.

Field Emitter Array Integrated Distributed Amplifiers, by Gray, H.F. and Greene, R.F., U.S. Patent 4,987,377; Serial No. 07/429,731; Navy Case No. 72,345, January 22, 1991.

Films of Dithiolene Complexes in Gas-Detecting Microsensors, by Grate, J.W., U.S. Patent 4,992,244; Serial No. 07/250,004; Navy Case No. 70,358, February 12, 1991.

Fluorinated Epoxy Resins with High Glass Transition Temperatures, by Griffith, J.R., U.S. Patent 4,981,941; Serial No. 07/329,227; Navy Case No. 71,674, January 1, 1991.

Gas Laser and Pumping Method Therefor Using a Field Emitter Array, by Gray, H.F., U.S. Patent 5,012,482; Serial No. 07/581,620; Navy Case No. 70,569, April 30, 1991.

Gyroklystron Device Having Multi-Slot Bunching Cavities, by Gold, S.H. and Fliflet, A.W., U.S. Patent 5,038,077; Serial No. 07,304,442; Navy Case No. 71,274, August 6, 1991.

Heterostructure Device Useable as a Far Infrared Photodetector, by Glaser, E.R. and Shanabrook, B.V., U.S. Patent 5,063,419; Serial No. 271,546; Navy Case No. 71,034, November 5, 1991.

High Accuracy Digital Acousto-Optic Matrix Computer, by Athale, R.A., U.S. Patent 4,986,640; Serial No. 07/704,454; Navy Case No. 68,312, January 22, 1991.

High Optical Density Measuring Spectrometer, by Welch, J.A., U.S. Patent 5,050,991; Serial No. 07/415,740; Navy Case No. 69,640, September 24, 1991.

High Power, High Sensitivity Microwave Calorimeter, by Mako, F.N. and Pasour, J.A., U.S. Patent 5,015,943; Serial No. 07/354,559; Navy Case No. 69,943, May 14, 1991.

Holmium Laser Pumped with a Neodymium Laser, by Bowman, S.R. and Rabinovich, W.S., U.S. Patent 5,036,520; Serial No. 597,127; Navy Case No. 72,884, July 30, 1991.

Laser Diode Pumped, Erbium-Doped, Solid State Laser with High Slope Efficiency, by Esterowitz, L., Allen, R.E., and Kintz, G.J., U.S. Patent 5,014,279; Serial No. 07/429,426; Navy Case No. 72,085, May 7, 1991.

Low Capacitance Field Emitter Array and Method of Manufacture Therefor, by Greene, R.F. and Gray, H.F., U.S. Patent 5,057,047; Serial No. 589,102; Navy Case No. 70,568, October 15, 1991.

Metal Phthalocyanines as Catalysts for Curing Phthalonitrile Prepolymers, by Walton, T.R., U.S. Patent 5,051,493; Serial No. 531,423; Navy Case No. 72,033, September 24, 1991.

Method for Producing Substoichiometric Silicon Nitride of Preselected Proportions, by Hubler, G.K., Donovan, E.P., and Vanvechten, D., U.S. Patent 5,015,353; Serial No. 07/102,937; Navy Case No. 70,810, May 14, 1991.

Method of Growing Diamond Film on Substrates, by Morrish, A.A., Natishan, P.M., and Carrington, W.A., U.S. Patent 5,075,094; Serial No. 07/516,585; Navy Case No. 72,143, December 24, 1991.

Method of Making Lipid Tubules by a Cooling Process, by Schoen, P.E., Yager, P., and Schnur, J.M., U.S. Patent 4,990,291; Serial

No. 07/161,934; Navy Case No. 71,049, February 5, 1991.

Method of Producing a Thin Silicon-on-Insulator Layer, by Godbey, D.J., Hughes, H.L., and Kub, F.J., U.S. Patent 5,013,681; Serial No. 07/414,225; Navy Case No. 72,038, May 7, 1991.

Narrow-Bandwidth Diffraction-Limited Coupled Stable-Unstable Resonator Laser Cavity, by Reintjes, J.F., Tankersley, L.L., Cooper, D.G., and Dexter, J.L., U.S. Patent 5,012,483; Serial No. 07/589,142; Navy Case No. 71,896, April 30, 1991.

Optically Stable, Large Time Bandwidth Acousto-Optic Heterodyne Spectrum Analyzer with Fixed Non-Zero Heterodyne Output, by Lee, J.N., Brown, R.B., and Craig, A.E., U.S. Patent 5,028,864; Serial No. 07/582,277; Navy Case No. 71,875, July 2, 1991.

Planar Fiber-Optic Interferometric Acoustic Sensor, by Lagakos, N. and Bucaro, J.A., U.S. Patent 4,994,668; Serial No. 07/402,174; Navy Case No. 71,258, February 19, 1991.

Polymer of Dithioether-Linked Phthalonitrile, by Keller, T.M. and Price, T.R., U.S. Patent 5,004,801; Serial No. 07/274,216; Navy Case No. 68,155, April 2, 1991.

Preservation and Restoration of Hemoglobin in Blood Substitutes, by Stratton, L.P., Farmer, M.C., and Rudolph, A.S., U.S. Patent 5,051,353; Serial No. 233,303; Navy Case No. 70,680, September 24, 1991.

Programmable Beam Transform and Beam Steering Control System for a Phased Array Radar Antenna, by Willey, J.M., Alter, J.J., and Letellier, J.P., U.S. Patent 5,008,680; Serial No. 07/187,804; Navy Case No. 70,622, April 16, 1991.

Pseudo-Random Support Structure for Transmission Gratings, by Meekins, J.F., U.S. Patent 5,025,464; Serial No. 07/498,249; Navy Case No. 68,075, June 18, 1991.

Radioactive Particle Densitometer Apparatus Employing Modulation Circuitry, by Johnson, H.A., U.S. Patent 5,049,744; Serial

No. 07/461,898; Navy Case No. 69,879, September 17, 1991.

Reflectometers, by Snail, K.A., U.S. Patent 4,988,205; Navy Case No. 71,614; Serial No. 07/297,648, January 29, 1991.

Room-Temperature, Flash pumped, 1.96 Micron Solid State Laser, by Esterowitz, L., Quarles, G.J., and Pinto, J.F., U.S. Patent 5,003,547; Navy Case No. 72,312; Serial No. 07/459,211,, March 26, 1991.

Scheiner-Principle Pocket Optometer for Self Evaluation and Biofeedback Accommodation Training, by Cushman, W.B., U.S. Patent 4,997,269; Serial No. 07/486,323; Navy Case No. 71,727, March 5, 1991.

Selective Metallization of Carbonyl-Containing Polymer Films, by Roland, C.M. and Sonnenschein, M.F., U.S. Patent 5,062,939; Serial No. 07/500,979; Navy Case No. 71,878, November 5, 1991.

Selective Readout of a Detector Array, by Levitt, H.L., Anderson, G.W., and Spezio, A.E., U.S. Patent 5,058,190; Serial No. 07/582,275; Navy Case No. 72,933, October 15, 1991.

Synthesis of Phthalonitrile Resins Containing Ether and Imide Linkages, by Keller, T.M., U.S. Patent 5,003,078; Serial No. 07/352,327; Navy Case No. 70,671, March 26, 1991.

Thin Film Magnetic Memory Elements, by Prinz, G.A., U.S. Patent 5,025,416; Serial No. 07/360,173; Navy Case No. 68,650, 0, 1991.

Ultra-Low-Loss Strip-Type Transmission Lines Formed of Bonded Substrate Layers, by Pond, J.M., Kaufman, I., and Gray, H.F., U.S. Patent 5,075,655; Serial No. 07/444,253; Navy Case No. 71,510, December 24, 1991.

Ultraviolet Optical Isolator Utilizing the Kdp-Isomorphs, by Dexter, J.L., Reintjes, J.F., Landry, J.E., and Cooper, D.G., U.S. Patent 5,029,953; Serial No. 597,847; Navy Case No. 73,129, July 9, 1991.

Underwater Acoustic Waveguide Transducer for Deep Ocean Depths, by Henriquez, T.A.,

U.S. Patent 4,982,386; Serial No. 07/532,251; Navy Case No. 69,873, January 1, 1991.

Volatile Divalent Metal Alkoxides, by Prudy, A. and Berry, A.D., U.S. Patent 4,982,019; Serial No. 07/387,048; Navy Case No. 71,728, January 1, 1991.

Waveguide-Binding Sensor for Use with Assays, by Thompson, R.B. and Villarruel, C.A., U.S. Patent 5,061,857; Serial No. 07/610,895; Navy Case No. 72,497, October 29, 1991.

Zero Cross-Correlation Complementary Radar Waveform Signal Processor for Ambiguous Range Radars, by Gerlach, K.R. and Kretschmer, F.F., U.S. Patent 5,047,784; Serial No. 07/647,946; Navy Case No. 72,821, September 10, 1991.

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